CAUTION: The course offerings and requirements of the University are continually under examination and revision. This catalog presents the offerings and requirements in effect at the time of publication, but is no guarantee that they will not be changed or revoked. Current information may be obtained from the following sources:

Admission Requirements —Director of Admissions

Course Offerings —Department offering course

Degree Requirements —Office of the Registrar, faculty adviser, head of major department, College Advising Center, or dean of college/school

Fees and Tuition —Office of the Treasurer

TITLE IX

The University of Tennessee does not discriminate on the basis of sex in the education programs and activities which it operates, pursuant to the requirements of Title IX of the Education Amendments of 1972, Pub. L. 92-318. This policy extends to both employment by and admission to the University.

Inquiries concerning Title IX should be directed to the Office of the Vice Chancellor for Planning and Administration, Room 506, Andy Holt Tower, 974-4391. Charges of violation of the above policy should also be directed to the Office of the Vice Chancellor for Planning and Administration.
Academic Calendar for 1977-78

Summer Quarter 1977
June 15 Orientation (Transfer & Freshman)
June 15-16 Registration, First or All Terms
June 17 Classes Begin
July 4 Independence Day (No Classes)
July 5 Drop Deadline, First Term
July 19 Classes End, First Term
July 20 Registration, Second Term
July 21 Classes Begin, Second Term
July 21 Drop Deadline, Full Term
August 8 Drop Deadline, Second Term
August 19 Classes End
August 23 Commencement

Fall Quarter 1977
September 16 Orientation (Transfer)
September 19 Orientation (Freshman)
September 19-20 Upperclassmen & Graduate Registration
September 20-21 Freshman and Transfer Registration
September 22 Classes Begin
October 26 Drop Deadline
October 28 East Tenn. Educ. Assoc. (No Classes)
November 5 Homecoming (No Classes)
November 24-26 Thanksgiving (No Classes)
December 6 Classes End
December 9 Commencement

Winter Quarter 1978
January 3 Orientation (Transfer & Freshman)
January 3-4 Registration
January 5 Classes Begin
February 8 Drop Deadline
March 15 Classes End
March 17 Commencement

Spring Quarter 1978
March 27 Orientation (Transfer & Freshman)
March 27-28 Registration
March 29 Classes Begin
May 2 Drop Deadline
June 6 Classes End
June 9 Commencement
Academic Calendar for 1978-79

Summer Quarter 1978
June 14 Orientation (Transfer)
June 15 Orientation (Freshman)
June 15-16 Registration First or All Terms
June 19 Classes Begin
July 4 Independence Day (No Classes)
July 6 Drop Deadline, (First Term)
July 20 Classes End, First Term
July 19-21 Registration, Second Term
July 24 Classes Begin, Second Term
July 24 Drop Deadline, Full Term
August 10 Drop Deadline, Second Term
August 23 Classes End
August 25 Commencement

Fall Quarter 1978
September 15 Orientation (Transfer)
September 18 Orientation (Freshman)
September 18-19 Upperclassmen & Graduate Registration
September 19-20 Freshman and Transfer Registration
September 21 Classes Begin
October 25 Drop Deadline
October 27 East Tenn. Educ. Assoc. (No Classes)
November 18 Homecoming (No Classes)
November 23-25 Thanksgiving (No Classes)
December 5 Classes End
December 8 Commencement

Winter Quarter 1979
January 3 Orientation (Transfer & Freshman)
January 3-4 Registration
January 5 Classes Begin
February 8 Drop Deadline
March 15 Classes End
March 19 Commencement

Spring Quarter 1979
March 26 Orientation (Transfer & Freshman)
March 26-27 Registration
March 28 Classes Begin
May 1 Drop Deadline
April 13-14 Easter (No Classes)
June 7 Classes End
June 12 Commencement
THE UNIVERSITY OF TENNESSEE,
KNOXVILLE

Administrative Officers
Chancellor, Jack E. Reese, A.B., A.M., PH.D.
Executive Assistant to the Chancellor,
Sammie S. Puett, B.S., M.S.
Assistant to the Chancellor, Donald R. Eastman III,
A.B., PH.D.
Vice Chancellor for Academic Affairs, Walter R. Herndon,
B.S., M.S., PH.D.
Associate Vice Chancellor for Academic Affairs,
Hardy Liston, Jr., B.S., M.E.A.
Associate Vice Chancellor for Academic Affairs,
Ralph V. Norman, Jr., A.B., B.D., M.A., PH.D.
Vice Chancellor for Business and Finance,
L. Evans Roth, A.B., M.S., PH.D.
Vice Chancellor for Graduate Studies and Research,
Luke Ebersole, A.B., A.M., PH.D.
Assistant Vice Chancellor for Planning and Administration,
Betsey B. Creemore, A.B., M.A., M.A.L.S.
Vice Chancellor for Student Affairs, Howard F. Aldmon,
B.S., A.M., E.D.D.
Assistant Vice Chancellor for Student Affairs,
James L. McAuliffe, B.A., M.S.

General Administrative Officers
Athletics, Director, George R. Woodruff, B.S.
Development, Director, Jack E. Williams, B.S.
Finance, Director, Harold B. Whitehead, B.S., CPA
Graduate Studies, Dean, Margaret N. Perry, B.S., M.S., Ph.D.
Physical Plant, Director, Clarence P. Leffler, B.S.
Public Relations, Director, David H. Lauver, B.S.
Research, Dean, Carl O. Thomas, A.B., M.A., PH.D.
Student Affairs:
Admissions and Records, Dean, John J. McDow,
B.S., M.S., PH.D.
Auxiliary Enterprises, Director, James L. McAuliffe,
B.A., M.S.
Career Planning and Placement Service, Director,
Howard H. Lumsden, B.S.
International Student and Cultural Affairs, Director,
Dixon C. Johnson, B.S., M.A., PH.D.
Intercollegiate Athletics for Women, Director,
Gloria S. Ray, B.S., M.S.
Student Activities, Dean, Philip A. Scheurer,
B.A., M.S.
Student Conduct and Orientation, Dean,
Charles R. Burchett, B.S., M.A.
Student Counseling Center and Special Services,
Director, Richard L. Nash, B.A., M.S., E.D.D.
Student Health Service, Administrator,
Fred E. Young, Jr., A.B., M.C.

Colleges and Schools
AT KNOXVILLE
Graduate School
Vice Chancellor for Graduate Studies and Research,
L. Evans Roth, A.B., M.S., PH.D.
Institute of Agriculture
Dean, College of Agriculture, O. Glen Hall,
B.S., M.S., PH.D.
Dean, College of Veterinary Medicine,
Willis W. Armstead, D.V.M., M.S., PH.D.
School of Architecture
Dean, Donald D. Hanson, B.Arch., M.Arch.
College of Business Administration
Acting Dean, C. Warren Neel, B.S., M.B.A., PH.D.
College of Communications
Dean, Donald G. Hileman, B.S., M.S., PH.D.
Division of Continuing Education
Dean, Joseph P. Goddard, B.S., M.S., E.D.D.
College of Education
Dean, William H. Coffield, B.S., M.A., PH.D.
School of Health, Physical Education, and Recreation,
Director, Madge M. Phillips, B.S., M.S., PH.D.
College of Engineering
Dean, and Director of Engineering Experiment
Station, Fred N. Peebles, B.S. in CHE, M.S., PH.D.
College of Home Economics
Dean, Lura M. Otdal, B.S., M.S., PH.D., D.SC.
College of Law
Dean, Kenneth L. Penagar, A.B., J.D., LL.M.
College of Liberal Arts
Dean, Alvin H. Nielsen, A.B., M.S., PH.D.
School of Library and Information Science
Director, Gary R. Purcell, A.B., M.L.S., PH.D.
School of Nursing
Dean, Sylvia E. Hart, B.S.N., M.S.N., PH.D.
School of Planning
Director, James A. Spencer, A.B., M.C.P.
School of Social Work
Dean, Ben P. Granger, B.A., M.P.A., M.S.S.W., PH.D.
Independent Departments
Air Force Reserve Officers’ Training Corps
Professor of Air Science, James E. Hiteshew,
B.G.E., M.A.E.D., Colonel, USAF
Army Reserve Officers’ Training Corps
Professor of Military Science, Daniel H. Bauer,
B.A., M.A., Colonel, USA

AT OAK RIDGE
Oak Ridge Graduate School of Biomedical Sciences
Director, Daniel Billen, B.S., M.S., PH.D.

AT TULLAHOMA
Space Institute
Dean, Charles H. Weaver, B.S., M.S., PH.D.

Other Educational and Public Service Units
Division of International Education
Director, Dixon C. Johnson, B.S., M.A., PH.D.
Libraries
Director, Donald R. Hunt, B.A., M.A., M.A.L.S.
THE UNIVERSITY OF TENNESSEE BOARD OF TRUSTEES

Legal Title: The University of Tennessee
His Excellency, THE GOVERNOR OF TENNESSEE Ex-Officio
The Commissioner of Education Ex-Officio
The Commissioner of Agriculture Ex-Officio
The President of The University Ex-Officio
The Executive Director of Tennessee Higher Education Commission Ex-Officio

<table>
<thead>
<tr>
<th>From Congressional Districts</th>
<th>District</th>
<th>Began</th>
<th>Term Expires</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buford Goldstein, Elizabethon</td>
<td>First</td>
<td>1975</td>
<td>June 1, 1977</td>
</tr>
<tr>
<td>E.S. Bevins, Jr., Concord</td>
<td>Second</td>
<td>1957</td>
<td>July 1, 1979</td>
</tr>
<tr>
<td>Leonard Raulston, Lookout Mountain</td>
<td>Third</td>
<td>1975</td>
<td>June 1, 1978</td>
</tr>
<tr>
<td>William M. Johnson, Sparta</td>
<td>Fourth</td>
<td>1975</td>
<td>June 1, 1981</td>
</tr>
<tr>
<td>Amon Carter Evans, Nashville</td>
<td>Fifth</td>
<td>1953</td>
<td>July 1, 1977</td>
</tr>
<tr>
<td>Clyde M. York, Columbia</td>
<td>Sixth</td>
<td>1951</td>
<td>July 1, 1979</td>
</tr>
<tr>
<td>Ben Douglass, Lexington</td>
<td>Seventh</td>
<td>1956</td>
<td>July 1, 1979</td>
</tr>
<tr>
<td>Tom Elam, Union City</td>
<td>Eighth</td>
<td>1975</td>
<td>June 1, 1984</td>
</tr>
<tr>
<td>Lee Winchester, Memphis</td>
<td>Ninth</td>
<td>1975</td>
<td>June 1, 1984</td>
</tr>
</tbody>
</table>

| From Anderson, Bedford, Coffee, Franklin, Lincoln, Moore, and Warren Counties |
|---------------------|---------|-------|-------------|
| Don O. Shadow      | 1970    | June 1, 1979 |

| From Davidson County |
|---------------------|---------|-------|-------------|
| Don O. Shadow      | 1975    | June 1, 1979 |

| From Hamilton County |
|---------------------|---------|-------|-------------|
| Paul J. Kinser      | 1969    | June 1, 1978 |

| From Knox County |
|------------------|---------|-------|-------------|
| Ann Baker Furrow | 1971    | June 1, 1980 |
| Frank P. Bowyer  | 1959    | June 1, 1980 |

| From Shelby County |
|--------------------|---------|-------|-------------|
| Harry W. Laughlin  | 1953    | July 1, 1981 |
| Marcus J. Stewart  | 1970    | July 1, 1981 |

| From Weakley County |
|---------------------|---------|-------|-------------|
| Wayne Fisher        | 1953    | July 1, 1981 |

| Student Member |
|----------------|---------|-------|-------------|
| Marion Ridley    | 1976    | July 1, 1977 |

<table>
<thead>
<tr>
<th>Officers of the Board</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governor Ray Blanton, Chairman</td>
</tr>
<tr>
<td>Tom Elam, Vice Chairman</td>
</tr>
<tr>
<td>Edward J. Boling, President</td>
</tr>
<tr>
<td>Brodie Baynes, Treasurer</td>
</tr>
<tr>
<td>Beauchamp E. Brogan, Secretary</td>
</tr>
</tbody>
</table>
Committees
The President is a member ex-officio of all standing committees.
Executive: York (Chairman), Fisher (Vice Chairman), Bowyer, Laughlin.
Finance and Business: Laughlin (Chairman), Johnson (Vice Chairman), Elam, Raulston.
Buildings and Grounds: Fisher (Chairman), Kinser (Vice Chairman), Bevins, Douglass, Winchester, York.
Academic Affairs: Furrow (Chairman), Elam, (Vice Chairman), Bowyer, Brown, Fisher, Goldstein, Ridley.
Agriculture: York (Chairman), Douglass (Vice Chairman), Fisher, Laughlin, Porter, Shadow, Stewart.
Athletics: Elam (Chairman), Furrow (Vice Chairman), Bowyer, Johnson, Raulston, York.
Development, Alumni Affairs, and Public Relations: Bowyer (Chairman), Goldstein (Vice Chairman), Elam, Evans, McReynolds, Raulston, Stewart, York, Ridley.
Medical Affairs: Stewart (Chairman), Bowyer (Vice Chairman), Bevins, Evans, Furrow, Laughlin, Winchester.
Student Affairs: Laughlin (Chairman), McReynolds (Vice Chairman), Bevins, Fisher, Furrow, Ingram, Johnson, Raulston, Shadow, Ridley.
Public Service and Continuing Education: Raulston (Chairman), Bevins (Vice Chairman), Evans, Kinser, McReynolds, Stewart, Winchester.
Faculty and Staff Affairs: Douglass (Chairman), Shadow (Vice Chairman), Bevins, Brown, Goldstein, Kinser.

THE UNIVERSITY OF TENNESSEE
ADMINISTRATION AND SERVICE
President, Edward J. Boling, B.S., M.S., E.D.D.
Executive Vice President, Vice President for Development, and Vice President for Business and Finance, Joseph E. Johnson, A.B., A.M., E.D.D.
Vice President for Academic Affairs, John W. Prados, B.S., M.S., PH.D.
Vice President for Agriculture, Webster Pendergrass, B.S.A., M.S., D.P.A.
Vice President for Continuing Education, Charles H. Weaver, B.S., M.S., PH.D.
Vice President for Health Affairs, and Chancellor of the Center for the Health Sciences, T. Albert Farmer, B.S., M.D.
Vice President for Public Service and Acting Chancellor, UT Nashville, Charles E. Smith, B.S., A.M., PH.D.
General Counsel, Beauchamp E. Brogan, B.S., J.D.
Executive Assistant to the President, Andrew J. Kozar, B.S., A.M., PH.D.
Treasurer, Brodie Baynes, B.S., CPA

Emeriti Administrators:
Emeritus President, Andrew David Holt, A.B., M.S., LL.D., LIITT.D., SC.D., PH.D.
Emeritus Vice President for Business and Finance, W. Harold Read, B.S., M.B.A., CPA.
Emeritus Vice President for Academic Affairs, Herman E. Spivey, A.B., A.M., PH.D.
Emeritus Vice President for Academic Affairs, Kenneth L. Knickerbocker, A.B., A.M., PH.D.
The University of Tennessee is a multi-campus, multi-purpose system of higher education encompassing all Tennessee. It is the state's official State University and Federal Land-Grant Institution—frequently called "the capstone of the state's educational system." The institution is owned and supported by the people of Tennessee. It also receives some federal support for certain programs sponsored cooperatively by the state and federal governments.

The central administrative staff consists of the president and six vice presidents who have the responsibility of administering the affairs of the statewide educational organization. The five primary campuses are under the direct supervision of chancellors.

In carrying out its unique responsibilities, The University of Tennessee has a statewide mission beyond the scope of any other institution of higher learning in Tennessee. The University seeks to develop human and material resources of the state through three broad programs: instruction, research, and extension and public service.

**Instruction**

The most comprehensive institution in the state's public education system, the University has the responsibility of providing the young people of Tennessee with the educational opportunities they need to become intellectually prepared for responsible and successful citizenship. Students may specialize in a great number of professional and occupational fields, thus helping to fill the state's needs for trained personnel in medicine, business, law, agriculture, industry, and other vocations essential to the welfare and progress of the citizens of Tennessee.

In addition to fulfilling this traditional role, the University also offers a wide range of quality programs in continuing education which help contribute to the personal and professional growth of students of all ages.

**Programs of Study**

In student enrollments and the scope of its academic programs, The University of Tennessee ranks among the larger institutions of higher education in the United States. In the fall of 1976, a total of 49,123 students enrolled on the five campuses of The University of Tennessee System. This total included 29,711 enrolled at Knoxville and Centers; 2,552 at the Center for the Health Sciences (Memphis); 5,082 at Martin; 6,182 at Chattanooga; and 5,616 at Nashville.

To serve the academic needs of all of these students, the University system offers 106 degree programs at the bachelor's level, 121 at the master's level, and 154 at the doctoral level. The degree programs offered by colleges and schools at the UT, Knoxville campus are described in this catalog. Degree programs offered by the Center for the Health Sciences (at Memphis) and at Martin, Chattanooga, and Nashville are described in special catalogs issued from those campuses.

The various colleges, departments, and administrative offices of the University hold membership in more than 60 regional and national education associations. The University as a whole is fully accredited by the Southern Association of Colleges and Schools. Individual colleges and departments are accredited by appropriate professional accrediting agencies.

**Colleges and Schools**

The University's academic programs consist of twenty-eight colleges and schools which offer studies on five primary campuses at Knoxville, Memphis, Martin, Chattanooga, and Nashville. The Knoxville campus also offers programs at Oak Ridge, Tullahoma, Memphis, and Kingsport. These colleges and schools and other academic units are as follows:

- UT, KNOXVILLE
  - Graduate School (offering programs leading to the master's or the doctor's degree)
  - College of Agriculture
  - School of Architecture
  - College of Business Administration
  - College of Communications
  - Division of Continuing Education
  - College of Education
  - School of Health, Physical Education, and Recreation
  - College of Engineering
  - College of Home Economics
  - College of Law
  - College of Liberal Arts
  - Graduate School of Library and Information Science
  - School of Nursing
  - Graduate School of Planning
  - Graduate School of Social Work
  - College of Veterinary Medicine

- At Oak Ridge
  - Oak Ridge Graduate School of Biomedical Sciences
  - Oak Ridge Evening School
  - Oak Ridge Resident Graduate Program

- At Tullahoma
  - Space Institute

- At Memphis
  - Joint University Center—MSU/UT

- At Kingsport
  - Graduate Center

- At Chattanooga
  - Graduate Engineering Center

- UT CENTER FOR THE HEALTH SCIENCES

- At Memphis
  - College of Basic Medical Sciences
  - College of Community and Allied Health Professions
  - College of Dentistry
  - College of Medicine
  - College of Nursing
  - College of Pharmacy
  - Graduate School—Medical Sciences

Other academic units associated with the Center for the Health Sciences
At Knoxville
UT Memorial Research Center and Hospital
Clinical Education Center

UT AT MARTIN
School of Agriculture
School of Business Administration
School of Education
Department of Engineering and Engineer-
Technology
School of Home Economics
School of Liberal Arts
Department of Military Science
Department of Nursing
Division of Extended Services

UT AT CHATTANOOGA
College of Arts and Sciences
College of Professional Studies
Engineering Division
Graduate Division
Continuing Education and Public Service

UT AT NASHVILLE
Undergraduate degrees offered in arts and
sciences, business administration, education,
engineering, and nursing; graduate degrees
offered in business administration; graduate
studies offered, in conjunction with the
Knoxville campus, in engineering and public
administration. All programs except nursing
offered primarily in evenings.

Faculty
A highly competent faculty is the most
essential quality of a strong institution of
higher education. The University of
Tennessee has a distinguished group of
faculty members, nationally recognized for
scholastic and professional achievements.
The faculty elects a representative
body called the Faculty Senate, which
transacts most of its business. The
Senate holds those powers and duties
delegated to it by the Trustees and by the
faculty of the University.

The educational policies of the institution
are established by the faculty. It determines
the entrance requirements for students,
prescribes and defines courses of study,
establishes the requirements for degrees,
determines rules for the academic guidance
of students, and recommends to the
Administration the candidates for degrees
who have completed prescribed courses of
study.

Extracurricular Opportunities
In addition to a broad scope of specialized
studies, the University offers numerous
extracurricular opportunities that contribute
to educational development. Students may
take part in religious activities, social and
cultural programs, and recreational and
avocational activities. More than two hundred
different extracurricular organizations and
activities are maintained on the University's
Knoxville campus.

Research
As Tennessee's most broadly based
institution of higher education, the University
has the skilled personnel, the laboratories and
libraries needed for its role as the state's
official research center. University research
is conducted to find solutions to problems
confronting the people of Tennessee, and to
discover new knowledge leading to greater
development of human and material
resources.

Funding of sponsored research at the
University totaled more than $16 million in
fiscal year 1976. This growth in the dollar
value of grants and contracts parallels growth
in the quality and diversity of research
programs of importance to the Volunteer
State and the entire nation. Increased crop
yields, improved industrial processes, more
effective medical services, and greater citizen
understanding of our environment and our
society are but a few of the benefits resulting
from the practical applications of University
research.

Research Organizations
The University's research is
strengthened by a number of special
organizations, within the colleges and
schools, which sponsor and coordinate
studies and experimentation in broad areas of
investigation. These are:

Agricultural Experiment Station (with
research units at Knoxville, Oak Ridge, and
Martin; six branch stations at Crossville,
Greeneville, Jackson, Lewisburg, Springfield,
and Spring Hill; and five field stations at
Grand Junction, Wartburg, Chattanooga,
Tullahoma, and Milan)

Bureau of Educational Research and
Service
Engineering Experiment Station
Center for Business and Economic
Research
Bureau of Public Administration
Memorial Research Center and Hospital
at Knoxville
Center for the Health Sciences at
Memphis—all divisions have
organized research programs.

Water Resources Research Center
The Graduate School—embraces almost all
departments in all colleges, is founded upon
research; graduate students are required to
do research as part of their study programs.

Extension and Public
Service
The University's teaching programs and
research findings extend beyond the limits of
the campuses to reach people in every
community and county in Tennessee.

Extension and public service programs are
part of the work of every University
department, and the institution has three
large divisions created specifically to
promote and coordinate statewide activities
to meet the need that can be served by its
educational resources. These special

THE CAMPUS OF THE UNIVERSITY OF TENNESSEE
IS THE STATE OF TENNESSEE

LEGEND

§ Academic Campuses
O Agricultural Extension Service District Offices
• Extension Leaders and Agents

A Agricultural Experiment Stations
4-H Centers
X Institute for Public Service Regional Offices
Historical Background

The University of Tennessee traces its origin back to the days when George Washington was President of the United States, back to the days even before Tennessee became a state. In 1794, two years before statehood, the Legislature of the Federal Territory which later became Tennessee granted a charter to Blount College, the earliest predecessor of the University at Knoxville. Blount College was named in honor of William Blount, Governor of the Territory, and was located near the center of Knoxville's present business district.

When operating as Blount College, the University is listed as one of the older institutions of higher education in the nation. Blount College also had other unusual qualities. It was strictly nonsectarian in character, which was unique among institutions of higher education in that day. The institution has remained non denominational to the present time and is said to be the oldest such institution west of the Appalachian Mountains. Blount College for a few years admitted women as students, thus becoming the first co-educational college in the United States, though it is probable that women studied in a subcollegiate department. The institution later restricted enrollment to men, but reverted to its present co-educational status in 1892.

In 1807 the institution began to widen the scope of its service area. During that year the State Legislature changed the institution's name to "East Tennessee College" and made it the recipient of one-half of the proceeds from the sale of land set aside by Congress for the support of two colleges, one in East and the other in Middle Tennessee. In 1826 the present site at Knoxville, the 40-acre tract known as "The Hill," was acquired by East Tennessee College.

In 1840 the State Legislature changed the institution's name to "East Tennessee University." The Civil War forced the institution to close its doors, and the buildings were used as a hospital for Confederate troops and were later occupied by Union troops. After the war East Tennessee University opened again, and from that time to the present the institution has enjoyed its most significant advances.

In 1869 East Tennessee University was selected by the State Legislature as Tennessee's Federal Land-Grant Institution, under terms of the Morrill Act passed by Congress in 1862. This selection meant the establishment of an Agricultural and Mechanical College as part of the University, supported by an endowment resulting from the sale of land warrants received by Tennessee from the Federal Government. Thus the efforts of the institution to broaden its offerings from a college to a true university were given a tremendous boost.

Ten years later, in 1879, East Tennessee University was chosen by the State Legislature as Tennessee's State University and its name was changed to "The University of Tennessee." By this act the University became pledged to the service and interest of the entire state, the head and an integral part of the public education system. By this act the state pledged the institution to the University its own name and reputation and promised the institution a future in keeping with the prestige of the state.

Since its establishment, the University has grown into an institution consisting of twenty-three different colleges and schools, and it has become statewide in its physical location as well as its services. The Center for the Health Sciences, founded in Nashville and taken over by the University in 1879, was moved to Memphis in 1911. The Martin campus was established in 1900 as a private institution, Hall-Moody Junior College, and it became a part of The University of Tennessee in 1927. The School of Social Work at Nashville became part of the University in 1951. A fourth primary campus was established at Chattanooga in 1917 with the merger of the University with the University of Chattanooga. In 1971 the University's Nashville Center, established in 1947, was made the fifth primary campus. Down through the years Agricultural Experiment Stations were established at Jackson, Spring Hill (Columbia), Springfield, Lewistown, Crossville, Wartburg, Oak Ridge, Greeneville, and Grand Junction. The system Division of Continuing Education coordinates all continuing education programs offered by the five primary campuses, and the Division of Continuing Education, Knoxville, conducts evening classes, conferences, and institutes for the Knoxville campus. The Agricultural Extension Service has district offices at Jackson, Nashville, Cookeville, Chattanooga, and Knoxville and has agricultural extension leaders and agents in every one of Tennessee's ninety-five counties.

In 1968 the Board of Trustees reorganized the institution into a university system, giving a central administrative staff responsibility for the entire statewide functions of the University and establishing chancellors on the primary campuses, responsible for their respective campuses.

State Legislatures and Governors of Tennessee, particularly those of the past half century, have shown an active interest in the development of The University of Tennessee. As a result, the University has been able to broaden and strengthen its programs to meet the educational and research needs of the people of Tennessee and has become one of the leading institutions of higher education in the nation—an institution with international prestige.
The University

For readmission of former undergraduate students:
Director of Readmissions
The University of Tennessee
Knoxville, Tennessee 37916

For admission to the College of Law (see College of Law Bulletin for information on admission to the College of Law):
Dean, College of Law
The University of Tennessee
Knoxville, Tennessee 37916

For admission to the Graduate School (see Graduate School Catalog for information on admission to the Graduate School):
Graduate School
The University of Tennessee
Knoxville, Tennessee 37916
(615) 974-3251

For admission to the Colleges of Basic Medical Sciences, Dentistry, Medicine, Nursing (except for the School of Nursing), and Pharmacy, and programs in the allied health professions, administered by The University of Tennessee Center for the Health Sciences in Memphis (see Health Sciences Catalog for information on admission to these colleges):
Director of Admissions
The University of Tennessee Center for the Health Sciences
82 South Dunlap
Memphis, Tennessee 38103

Deadlines for Applications
Applications for undergraduate admission and all supporting credentials must be received by the Director of Admissions no later than August 1 for fall quarter admission, and no later than three weeks before the start of classes for admission to any other quarter, except as noted below.

Applications for Veterinary Medicine must be received by the Director of Admissions by January 31 for admission into the fall quarter.

Applications for the School of Architecture must be received no later than March 1 for admission to the summer and fall quarters. Selection will be made by March 15.

November 1 is the deadline for applications for the spring quarter; enrollment is closed for the winter quarter. Applicants for the School of Nursing must be received by March 1. Selection will be made by March 15; enrollment is closed for the winter and spring quarters.

Former students who have been dropped from the University for academic deficiency or disciplinary reasons must apply for readmission to the Director of Readmissions no later than six weeks before the start of classes of the quarter the student wishes to enter.

Undergraduate Admissions Requirements
Applicants for undergraduate admissions to the University must meet the following:
1. general requirements as indicated below;
2. requirements for the applicant's specific admissions category as shown in Table I, and
3. requirements of the academic college or school the applicant seeks to enter as shown in Table II.

ACADEMIC CREDENTIALS
Freshman Applicants—Transcript of high school credits and score report of the American College Testing Program (ACT). These should be received at the University preferably in the fall of the senior year; a supplementary high school credit sheet of final senior grades should be sent after graduation.

ACT tests are administered five times each year, in October, December, February, April, and July. Score reports must be sent directly from ACT to the University. Information concerning ACT may be obtained from high school guidance counselors or by writing American College Testing Programs, P.O. Box 168, Iowa City, Iowa 52240.

Transfer Applicants—Complete transcripts of all college work at each college or university attended.

EVIDENCE OF GOOD CHARACTER
Freshman Applicants—Recommendation of high school principal.

Transfer Applicants—Character report from college student personnel officer(s).

AMERICAN HISTORY
All Applicants—Effective July 1, 1978, and afterwards, all students receiving a bachelor's degree must have completed one unit of American history on the high school level or nine quarter hours of college credit in American history in order to receive a bachelor's degree as required by the General Assembly of the State of Tennessee.

Residency
Students are classified as in-state or out-of-state for the purpose of determining fees and tuition on the basis of regulations established by the Board of Trustees. Basically, these regulations state that: (1) students receiving support from their parents are residents of the same state as their parents, and (2) students independent of parental support may establish Tennessee residency for fee purposes by producing evidence of domicile to the University's satisfaction, proving that they came to Tennessee for reasons other than obtaining an education for themselves or their spouses.

A student's residency classification for fee purposes also determines whether the student will be considered under in-state or out-of-state admissions requirements. Children of alumni scholarship recipients are admitted under the same requirements as in-state students, even though they may be required to pay out-of-state tuition. Inquiries concerning residency should be addressed to the Director of Admissions.

Admission to the University's professional programs (health professions [see p. 170], law, etc.) is becoming increasingly restricted to Tennessee residents. An out-of-state student completing a pre-professional program at the University of Tennessee, Knoxville does not gain preferential prior admission to a professional program.

High School Subjects That May Be Offered

Group A

<table>
<thead>
<tr>
<th>MAXIMUM UNITS</th>
<th>MAXIMUM UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algebra</td>
<td>2.5</td>
</tr>
<tr>
<td>Art</td>
<td>3</td>
</tr>
<tr>
<td>Bible</td>
<td>1</td>
</tr>
<tr>
<td>Biology</td>
<td>4</td>
</tr>
<tr>
<td>(Botany &amp; Zoology)</td>
<td>2</td>
</tr>
<tr>
<td>Bookkeeping</td>
<td>1</td>
</tr>
<tr>
<td>Business Arithmetic</td>
<td>1</td>
</tr>
<tr>
<td>History</td>
<td>4</td>
</tr>
</tbody>
</table>

Business English 1
Chemistry 1
Civics 1
Commercial Law 1
Distributive Education 1
Dramatics 1
Economics 1
English 1
French 4
Geography 1
Geology 1
Geometry 1.5

Group B

<table>
<thead>
<tr>
<th>MAXIMUM UNITS</th>
<th>MAXIMUM UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>4</td>
</tr>
<tr>
<td>Distributive Education 2</td>
<td></td>
</tr>
<tr>
<td>Engineering</td>
<td>2</td>
</tr>
<tr>
<td>Drawing</td>
<td>2</td>
</tr>
<tr>
<td>Physical Education 1</td>
<td></td>
</tr>
<tr>
<td>Home Economics 4</td>
<td></td>
</tr>
<tr>
<td>ROTC</td>
<td>1</td>
</tr>
<tr>
<td>Shopwork</td>
<td>2</td>
</tr>
</tbody>
</table>

Units—Entrance requirements are stated in terms of units. A unit represents nine months of study in a subject in a secondary school, constituting approximately one quarter of a full year's work. A four-year secondary school curriculum should be regarded as representing sixteen units of work as a minimum.

Unit Requirements—For admission to the University, students must present one unit in American history or take a comparable course during the first year in college, with college credit.

Unit Requirements for Individual Programs
A number of programs offered by the University require specific high school units for admission beyond the general University admissions requirements. These are shown in Table II.

Unclassified Students. Students who meet University admissions requirements but do not meet the specific unit requirements of the program they seek to enter may be admitted as unclassified students. Each unclassified student will be assigned special advisers in the college they plan to enter. Students so admitted should remove entrance deficiencies as soon as possible, and in no event later than one year following enrollment. Students who have not removed entrance deficiencies by the start of their third year in college will not be allowed to continue at the University.

Special Requirements for International Students
In making application for admission to undergraduate study, each international student will be required to provide the following:
1. A completed application for undergraduate admission;
2. Authenticated copies of all academic records. These records should describe the courses of instruction in terms of years spent in school and types of subject matter covered, with grades earned in each subject; and
3. Undergraduate international students whose native language is not English must present a score of at least 475 on the Test of English as a Foreign Language (TOEFL) before being admitted. The test results should
# TABLE I

ADMISSIONS REQUIREMENTS FOR SPECIFIC CATEGORIES

<table>
<thead>
<tr>
<th>Admissions Category</th>
<th>Admissions Requirements¹</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FRESHMAN</strong></td>
<td></td>
</tr>
<tr>
<td>In-State</td>
<td>Graduation from an approved high school; completion of all high school units required for the program student seeks to enter, as specified in Table II; applicants having neither a high school grade point average of at least 2.25 nor an ACT composite score of at least 17 will be assigned a special adviser. ACT score report is required for counseling and advisement.</td>
</tr>
<tr>
<td>Out-of-State</td>
<td>Same as for in-state freshman except that applicants from states in the region served by the Southern Association of Colleges and Schools, and from Arkansas, must have minimum high school grade point average at least 2.25 and ACT composite score at least 18. Applicants from other states must have high school grade point average at least 2.25 and ACT composite score at least 20.</td>
</tr>
<tr>
<td><strong>FRESHMAN — GED</strong></td>
<td>Applicant’s high school class must have graduated; must be at least 18 years old; average standard score of at least 50 on the high school level General Education Development Tests; completion of high school units required for the program student seeks to enter, as specified in Table II.</td>
</tr>
<tr>
<td><strong>FRESHMAN — EARLY ADMISSION</strong></td>
<td>Completion of junior year in high school; completion of high school units required for the program student seeks to enter; high school grade point average at least 3.50 and ACT scores at or above the 95th percentile for University of Tennessee freshmen; nomination by the student’s high school principal and consent of parents; review and approval by the Director of Admissions.</td>
</tr>
<tr>
<td><strong>TRANSFER</strong></td>
<td></td>
</tr>
<tr>
<td>In-State</td>
<td>At least 12 hours of college credit work at an accredited institution of higher learning; honorable dismissal from all such institutions attended; grade point average on all college work attempted, at least the minimum that the University of Tennessee requires of its own students for readmission (see Undergraduate Retention Standards, page 20 of this catalog).²</td>
</tr>
<tr>
<td>Out-of-State</td>
<td>Same as for in-state transfer applicants except that grade point average on all college work must be at least 2.00 to be eligible for consideration. Eligible students will be screened by the Committee on Admissions for final decision.²</td>
</tr>
<tr>
<td><strong>SPECIAL STUDENT</strong></td>
<td>Applicant’s high school class must have graduated; may not be candidate for bachelor’s degree; must show satisfactory evidence of preparation for courses attempted. Special students may accumulate no more than 90 hours of college credit toward a degree (including any previous college work). To enroll in a degree program, a special student must meet transfer admissions requirements. Former University of Tennessee students may not be admitted as special students unless they have already earned a bachelor’s degree.</td>
</tr>
</tbody>
</table>

¹Grade point averages are expressed on a 4.00 scale.
²Transfer applicants for the School of Architecture must have a college grade point average of 2.30. Transfer applicants for the College of Communications must have an average of at least 2.00. Transfer applicants who have attempted at least 36 quarter hours of college work must have grade point averages of at least 2.00 for admission to the College of Education, the College of Business Administration or the College of Home Economics.
<table>
<thead>
<tr>
<th>College/Degree Sought</th>
<th>English</th>
<th>One Foreign Language</th>
<th>Algebra</th>
<th>Trigonometry</th>
<th>Geometry</th>
<th>Advanced Math or Trigonometry</th>
<th>Science or Humanities</th>
<th>Minimum Group A Units</th>
<th>Total Units</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COLLEGE OF AGRICULTURE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor of Science in Agriculture</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td></td>
<td>11</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td>A second unit of algebra may be offered in lieu of geometry.</td>
</tr>
<tr>
<td>Bachelor of Science in Forestry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor of Science in Agricultural Engineering</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>11</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SCHOOL OF ARCHITECTURE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor of Architecture</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>4.5</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td>These units allow admission to first-year pre-architectural program. Admission to the second year requires: (1) satisfactory completion of first year architectural program with grade point average at least 2.3; exceptions may be made by petition only, (2) a personal interview and evaluation of applicant's work by a designated member of the School of Architecture, (3) application to the School of Architecture no later than June 15 preceding the start of the second year.</td>
</tr>
<tr>
<td><strong>COLLEGE OF BUSINESS ADMINISTRATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor of Science in Business Administration</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
<td>12</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td>A unit of advanced mathematics or trigonometry may be offered in lieu of the second unit of algebra or the unit of geometry.</td>
</tr>
<tr>
<td><strong>COLLEGE OF COMMUNICATIONS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor of Science in Communications</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td></td>
<td>12</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td>A second unit of algebra may be offered in lieu of geometry.</td>
</tr>
<tr>
<td><strong>COLLEGE OF EDUCATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor of Science in Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Three units of science, including physics, are recommended.</td>
</tr>
<tr>
<td><strong>COLLEGE OF ENGINEERING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor of Science in Engineering</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>.5</td>
<td>12</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td>A second unit of algebra may be offered in lieu of geometry.</td>
</tr>
<tr>
<td><strong>COLLEGE OF HOME ECONOMICS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor of Science in Home Economics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>COLLEGE OF LIBERAL ARTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor of Arts; general and pre-professional curricula</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>13</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td>A second unit of algebra may be offered in lieu of geometry. See College of Liberal Arts section, page 168, for discussion of language requirements.</td>
</tr>
<tr>
<td>Bachelor of Fine Arts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor of Music</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two-year pre-dentistry, pre-medical technology, and pre-physical therapy programs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor of Science in Chemistry</td>
<td>3</td>
<td>2</td>
<td>1.5</td>
<td>1</td>
<td>13</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td>A second unit of algebra may be offered in lieu of geometry; a unit of history or social science is required.</td>
</tr>
<tr>
<td>Two-year pre-pharmacy program</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td></td>
<td>13</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td>A second unit of algebra may be offered in lieu of geometry.</td>
</tr>
<tr>
<td>Two-year pre-nursing program</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td></td>
<td>13</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td>A second unit of algebra may be offered in lieu of geometry.</td>
</tr>
<tr>
<td><strong>SCHOOL OF NURSING (Knoxville)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor of Science in Nursing</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td></td>
<td>13</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td>A second unit of algebra may be offered in lieu of geometry. One unit of chemistry is recommended.</td>
</tr>
</tbody>
</table>
### MAJORS AND DEGREES

**Institute of Agriculture:**
- College of Agriculture
  - Agricultural Business
  - Agricultural Economics & Rural Sociology
  - Agricultural Education
  - Agricultural Engineering
  - Agricultural Mechanization
  - Animal Science
  - Food Technology & Science
  - Forestry
  - Ornamental Horticultural & Landscape Design
  - Plant and Soil Science
  - Wildlife and Fisheries Science

**College of Veterinary Medicine:**
- Veterinary Medicine

**School of Architecture:**
- Architecture

**College of Business Administration:**
- Accounting
- Banking
- Business Education
- Economics
- Finance
- General Business
- Industrial Management
- Insurance
- Marketing
- Office Administration - General
- Office Administration - Secretarial
- Personnel Management
- Public Administration
- Real Estate & Urban Development
- Statistics
- Transportation

**College of Communications:**
- Advertising
- Broadcasting
- Journalism

**College of Education:**
- Art Education
- Business Education
- Distributive Education
- Elementary Education
- English Education
- Foreign Language Education
- Industrial Education
- Mathematics Education
- Music Education
- Science Education
- Social Science Education
- Special Education

**School of Health, Physical Education & Recreation:**
- Physical Education
- Public Health Education
- School Health Education

<table>
<thead>
<tr>
<th>DEGREE</th>
<th>College of Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.S. Ag.</td>
<td>Aerospace Engineering</td>
</tr>
<tr>
<td>B.S. Ag.</td>
<td>Civil Engineering</td>
</tr>
<tr>
<td>B.S. Ag.</td>
<td>Chemical Engineering</td>
</tr>
<tr>
<td>B.S. Ag.</td>
<td>Electrical Engineering</td>
</tr>
<tr>
<td>B.S. Ag.</td>
<td>Engineering Physics</td>
</tr>
<tr>
<td>B.S. Ag.</td>
<td>Engineering Science</td>
</tr>
<tr>
<td>B.S. Ag.</td>
<td>Industrial Engineering</td>
</tr>
<tr>
<td>B.S.F.</td>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td>B.S. Ag.</td>
<td>Metallurgical Engineering</td>
</tr>
<tr>
<td>B.S. Ag.</td>
<td>Nuclear Engineering</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DEGREE</th>
<th>College of Home Economics</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.S. Ag</td>
<td>Child and Family Studies</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Food Science, Nutrition, &amp; Food Systems Administration</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Crafts, Interior Design and Housing</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Home Economics Education</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Textiles and Clothing</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>College of Law</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Law</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>B.A.</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Anthropology</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Art</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Art History</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Audiology</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Biology</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Botany</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Chemistry</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>College Scholars Program</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Computer Science</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Cultural Studies</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Economics</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>English</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>French</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Geography</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Geology</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>German</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Greek</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>History</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Human Services</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Individualized Program</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Italian</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Latin</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Mathematics</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Medical Technology</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Microbiology</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Music</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Philosophy</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Physics</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Political Science</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Pre-professional Programs</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Psychology</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Religious Studies</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Russian</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Sociology</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Spanish</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Speech &amp; Theatre</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Speech Pathology</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Studio Art</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>Zoology</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>College of Liberal Arts</td>
</tr>
<tr>
<td>B.S. Ag</td>
<td>J.D.</td>
</tr>
<tr>
<td>B.A.</td>
<td>College of Liberal Arts</td>
</tr>
<tr>
<td>B.A.</td>
<td>Anthropology</td>
</tr>
<tr>
<td>B.A.</td>
<td>Art</td>
</tr>
<tr>
<td>B.A.</td>
<td>Art History</td>
</tr>
<tr>
<td>B.A.</td>
<td>Audiology</td>
</tr>
<tr>
<td>B.A.</td>
<td>Biology</td>
</tr>
<tr>
<td>B.A.</td>
<td>Botany</td>
</tr>
<tr>
<td>B.A.</td>
<td>Chemistry</td>
</tr>
<tr>
<td>B.A.</td>
<td>College Scholars Program</td>
</tr>
<tr>
<td>B.A.</td>
<td>Computer Science</td>
</tr>
<tr>
<td>B.A.</td>
<td>Cultural Studies</td>
</tr>
<tr>
<td>B.A.</td>
<td>Economics</td>
</tr>
<tr>
<td>B.A.</td>
<td>English</td>
</tr>
<tr>
<td>B.A.</td>
<td>French</td>
</tr>
<tr>
<td>B.A.</td>
<td>Geography</td>
</tr>
<tr>
<td>B.A.</td>
<td>Geology</td>
</tr>
<tr>
<td>B.A.</td>
<td>German</td>
</tr>
<tr>
<td>B.A.</td>
<td>Greek</td>
</tr>
<tr>
<td>B.A.</td>
<td>History</td>
</tr>
<tr>
<td>B.A.</td>
<td>Human Services</td>
</tr>
<tr>
<td>B.A.</td>
<td>Individualized Program</td>
</tr>
<tr>
<td>B.A.</td>
<td>Italian</td>
</tr>
<tr>
<td>B.A.</td>
<td>Latin</td>
</tr>
<tr>
<td>B.A.</td>
<td>Mathematics</td>
</tr>
<tr>
<td>B.A.</td>
<td>Medical Technology</td>
</tr>
<tr>
<td>B.A.</td>
<td>Microbiology</td>
</tr>
<tr>
<td>B.A.</td>
<td>Music</td>
</tr>
<tr>
<td>B.A.</td>
<td>Philosophy</td>
</tr>
<tr>
<td>B.A.</td>
<td>Physics</td>
</tr>
<tr>
<td>B.A.</td>
<td>Political Science</td>
</tr>
<tr>
<td>B.A.</td>
<td>Pre-professional Programs</td>
</tr>
<tr>
<td>B.A.</td>
<td>Psychology</td>
</tr>
<tr>
<td>B.A.</td>
<td>Religious Studies</td>
</tr>
<tr>
<td>B.A.</td>
<td>Russian</td>
</tr>
<tr>
<td>B.A.</td>
<td>Sociology</td>
</tr>
<tr>
<td>B.A.</td>
<td>Spanish</td>
</tr>
<tr>
<td>B.A.</td>
<td>Speech &amp; Theatre</td>
</tr>
<tr>
<td>B.A.</td>
<td>Speech Pathology</td>
</tr>
<tr>
<td>B.A.</td>
<td>Studio Art</td>
</tr>
<tr>
<td>B.A.</td>
<td>Zoology</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DEGREE</th>
<th>College of Nursing</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.S. Ag</td>
<td>Nursing</td>
</tr>
<tr>
<td>B.F.A.</td>
<td>B.S.N.</td>
</tr>
</tbody>
</table>
be sent by Educational Testing Service to the Director of Admissions. Final consideration cannot be granted until test results are received by the Director of Admissions.

NOTE: All international students whose native language is not English must also take an English Proficiency Examination after they arrive at the University. Students will be placed in appropriate English courses based on the results of this examination.

Advanced Standing by Examination

Students at The University of Tennessee, Knoxville may accelerate their programs through credit by examination. To receive such credit, a student must be regularly enrolled at the Knoxville campus.

ADVANCED PLACEMENT EXAMINATIONS

Students who satisfactorily pass Advanced Placement Examinations prepared and administered under the auspices of the College Entrance Examination Board are eligible to receive credit in courses offered by the College of Liberal Arts on the basis of such tests. In each case the final decision as to whether credit is to be given on this basis rests with the appropriate department, as does the determination of the number of credit hours and the specific courses for which such examinations are to be taken as evidence of acceptable proficiency. Participating departments are Botany, Chemistry, Classical Languages, English, German, History, Mathematics, Physics, Romance Languages, and Zoology.

PROFICIENCY EXAMINATIONS

Proficiency examinations for advanced standing are offered in the Colleges of Agriculture, Business Administration, Education, Engineering, Liberal Arts, and Home Economics, and in the School of Nursing (Knoxville). A student may obtain the privilege of taking proficiency examinations on recommendation of the head of the department and approval of the Registrar. See additional discussion on page 22.

Additional Requirements for Registration of Admitted Students

MEDICAL HISTORY

Though a physical examination is not required, a Medical History Questionnaire is sent to all admitted students and must be completed by the student, parent or other responsible party who is familiar with the student's medical history. Such information will facilitate University physicians in providing continuing health care. This form must be returned to the Student Health Service before enrollment.

PARTICIPATION IN ORIENTATION

Beginning freshman and transfer students are required to attend an orientation session prior to their first registration at the University. Schedules for these programs are mailed to admitted students by the Dean of Student Conduct and Orientation. Orientation programs are designed to help new students become acquainted with opportunities and services at the University, and to provide information needed for registration.

Faculty Advising

Once students are admitted, the University accepts certain responsibilities for their guidance and placement in order that they may secure the greatest benefit from their university work. At registration each student is assigned to a member of the faculty, who acts as the student's adviser. The duties of the adviser are to assist the student in selecting subjects to ensure a well-rounded education, and to aid the student in interpreting the University's requirements. The responsibility for the selection of courses rests, in the final analysis, upon the student, and it is the province of the adviser to refuse approval of a course which the student elects. Similarly, it is the full responsibility of all students to meet the requirements of their courses of study in their proper order, so that they may not in the senior year find themselves ineligible for graduation. Although students are urged to consult frequently with advisers, they are required during the fall quarter to have a conference sometime within a five week period between early October and mid-November at which time students will receive winter quarter preregistration scan sheets. A tripartite meeting format will be made at each conference recording students' progress in academic programs, career planning, professional development and other related activities.

All beginning students, and former students whose grade point averages are below 2.00, must obtain adviser approval of their course selections at registration.

The Colleges of Business Administration, Education, and Liberal Arts have established advising centers where students may go at any time for advice on academic matters.

The Student Counseling Center, 900 Volunteer Boulevard, is available to any student desiring help with individual or personal problems. Facilities are also available for improving reading skills and study habits. Students may go to the Center themselves or they may be referred by members of the faculty.

Special State and Federal Laws for Educational Purposes

SENATE BILL 1445

Persons sixteen years of age or older who are domiciled in Tennessee, may audit courses without payment of course fees if space is available in the individual class. Interested persons should inquire at The University of Tennessee Evening School Office during regular office hours.

FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT

This act provides for confidentiality of student records; however, it also provides for basic identification of people at UT without the consent of the individual. Release of information to third parties includes directory information, such as contained in the campus telephone book and sports brochures. Such information includes name, address, telephone number, date and place of birth, major, dates of attendance, degree and awards, the most recent previous educational agency or institution attended, participation in school activities and sports, and weight and height (for special activities).

Public notice of the categories to be contained in a directory is given, and a period of one week is provided during which a student may request that such information not be released.

TITLE IX

The University of Tennessee does not discriminate on the basis of sex in the education programs and activities which it operates, pursuant to the requirements of Title IX of the Education Amendments of 1972, Pub. L. 92-318.

This policy extends to both employment by and admission to the University.

Inquiries concerning Title IX should be directed to the Office of the Vice Chancellor for Planning and Administration, Room 506, Andy Holt Tower, 974-4391. Charges of violation of the above policy should also be directed to the Office of the Vice Chancellor for Planning and Administration.

AMERICAN HISTORY

Effective July 1, 1978 and afterwards, all students receiving a bachelor's degree must have completed one unit of American history on the high school level or nine quarter hours of collegiate American history in order to receive a bachelor's degree as required by the General Assembly of the State of Tennessee (Tennessee Code Annotated 549-3253).

General Academic Regulations

Credit Hours, Grades, and Grade Point Average

The basic unit of credit at The University of Tennessee, Knoxville, is the quarter hour. This normally represents one hour of lecture or recitation or two hours of laboratory work per week. Each course at the University carries a number of quarter hours of credit specified in the course description. At the completion of each course, a student will be assigned a grade reflecting the student's performance in the course. Passing grades normally carry with them a certain number of quality points per quarter hour of credit in the course. A student's grade point average is obtained by dividing the total number of quality points the student has accumulated by the total number of quarter hours the student has attempted, not including hours for which grades of N, NC, NG, P, S, SI, and W have been received.

Undergraduate students are graded on the following scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Performance</th>
<th>Per Quarter Hour of Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Superior</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>Good</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>Average</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>Below Average</td>
<td>1</td>
</tr>
<tr>
<td>F</td>
<td>Failure</td>
<td>0</td>
</tr>
</tbody>
</table>

TEMPORARY GRADES

A student receiving a grade of I or SI should arrange with the teacher to take whatever action is needed to remove the grade at the earliest possible date, and in any event, within two years after the course was attempted. A student need not be enrolled at the University to remove a temporary grade.

I (incomplete) is assigned to a student whose work is satisfactory but who has failed
to complete a laboratory, shop, or other parallel exercise. The I carries no quality points and counts as a failure in the computation of grade point average until removed. The grade of I may also be assigned by any faculty member to students who appear to be deficient in their usage of English in the regular work or who are otherwise failing; the grade of I is removed when the Committee on Student English certifies to the instructor that a student has made the necessary improvements.

SI (Incomplete) is assigned when the work is satisfactory but when a portion of the course is not completed. The grade is awarded only in courses where S/NC grading has been elected. The grade of SI for incomplete work will be recorded as an SI, which is not computed in the average.

GRADERS THAT DO NOT INFLUENCE GRADE POINT AVERAGE

The grades of N, NG, P, and W carry no quality points, but hours on which these grades are earned are not counted in computing a student's grade point average. Hence these grades have no effect on grade point average.

NC (no credit) indicates failure to complete a course satisfactorily when taken on an S/NC basis.

S (satisfactory) is assigned for C or better work when a course is taken on an S/NC grading basis.

SI (incomplete) is assigned in S/NC graded courses only. See below.

W (withdrawal) is assigned in courses from which a student has officially withdrawn. Regulations concerning withdrawal from courses or from the University appear in the following section of this catalog, entitled "Changes in Registration."

SATISFACTORY/NO CREDIT GRADING SYSTEM

The purpose of this system is to encourage the student to venture beyond the limits of those courses in which he usually does well and, motivated by his own intellectual curiosity, explore subject matter in which performance may be somewhat less outstanding than work in preferred subject fields. To this end a Satisfactory/No Credit (S/NC) systems of grading has been developed for undergraduate courses (1000, 2000, 3000, and 4000 level courses). Neither grade is counted in a student's grade point average, but, like all other grades, is entered on the permanent record. S is given for C or better work on the traditional grading scale and NC is given for less than C work. The student only receives credit in the course if an S is received. A student may not repeat a course for S/NC if the student received a conventional grade (A, B, C, D, F, or I).

The instructor of a conventionally graded course may not be informed which student, if any, has elected S/NC grading. If the student elects nonconventional grading, the computer converts an A, B, or C to an S and a D or F to NC. The grade of I for incomplete work will be recorded as an I, which will not be computed in the average. A student is permitted to change the system of grading in a course through the add deadline. The grade W will be applied in the same manner for either a regular grading system or S/NC grading. The changing of an S/NC grade to a regular letter grade or vice versa is not permitted unless a bona fide error is determined by the Registrar.

REPEATING COURSES

When a course is repeated the last grade only is counted in computing the grade point average. All grades are entered on the permanent record. A student may not repeat a course more than twice in order to obtain a better grade.

Graduate students and Undergraduates taking courses for graduate credit are graded as follows:

A — (4 quality points per quarter hour); indicates superior work.
B+ — (3.5 quality points per quarter hour); indicates above satisfactory work.
B — (3 quality points per quarter hour) indicates satisfactory work.
C+ — (2.5 quality points per quarter hour); indicates performance less than expected.
C — (2 quality points per quarter hour); indicates work of borderline quality. This grade represents work below the standard expected of graduate students.
D — (1 quality point per quarter hour); indicates clearly unsatisfactory work and carries no graduate credit.
F — (no quality point value); indicates extremely unsatisfactory work and
I — (no quality point value); indicates that the student has done satisfactory work in the course, but—because of circumstances beyond control—has been unable to finish all requirements. It is not to be given to enable a student to do additional work to bring up a deficient grade. All incompletes must be removed within 2 quarters. If a supplementary grade report has not been received in the Graduate Office one week prior to the end of the second quarter, the I will be converted to an F. The incomplete will not be counted in the cumulative average until a grade of S is received. No student may graduate with an I on his record.

S/NC — (carries credit hours, but no quality point value); S is equivalent to B or better, and NC means no credit earned. NC grades may be repeated for an S. S/NC grading is allowed only where indicated in the Graduate Catalog. S/NC is used for courses which culminate in a thesis, dissertation, or preliminary examination. The N grades take on the value of the S when the thesis or dissertation is accepted by the Graduate School. The number of S/NC courses to be allowed in a student's program of study shall be limited to one-fourth of the course work hours required (excluding thesis or dissertation) in a program. (This would be 9 hours or 12 hours in a 48-hour non-thesis program or 18 hours in a doctoral program of 72 hours excluding dissertation hours.)

Graduate students are required to make an overall minimum grade average of B in courses taken for graduate credit. No graduate student shall be allowed to repeat a course for the purpose of raising a grade already received. Transferred work will not be counted in computing the grade average on courses completed in other universities. Law students are graded on a numerical scale from 0.0 to 4.0. Quality points per quarter hour of credit in a given course are equal to the numerical grade received in the course. Grades of 0.5 and below count as failures. Some courses are graded on an S/NC basis.

GRADUATING SENIOR PRIVILEGES

A senior who fails one subject during the quarter of intended graduation has the privilege of standing an examination in that subject at the beginning of or during the next quarter, and, if successful, receiving the degree at the next commencement.

A senior who receives the grade of I in any subject will, on request to the instructor, be given the opportunity to remove the deficiency before the close of the quarter, but not later than the last day before commencement, providing that successfully passing these courses will make him/her eligible for graduation.

FRESHMAN ENGLISH

English 1510-20 and English 1518-28 are offered on a grade system of A, B, C, NC.

ENGLISH PROFICIENCY

Students are expected to maintain a satisfactory standard of oral and written English throughout their college programs. Any student may be reported by a member of the faculty for examination in English, and, if found deficient by the Committee on Student English, be required to take without credit such further work as the Committee may direct. To facilitate the reporting of students deficient in English, faculty members may simply check the column headed "English" on the quarterly grade sheets. A student checked by any faculty member will be required to remedy the deficiency through work in the Writing Laboratory. Remedial work in the laboratory shall be started as soon as possible after the student has been notified of the deficiency and it shall continue until the student's performance in English has been declared satisfactory by the laboratory instructor.

Changes in Registration

Mid-term is an announced date midway between the beginning and ending days of classes each quarter or session (35 calendar days after the beginning of classes, except for summer sessions). Prior to mid-term undergraduate students may withdraw from courses as specified below. Providing space is available and prior to the third meeting of the class, students may add courses without the permission of the head of the department offering the course and the instructor whose section the student wishes to enter. Students may not add courses after the second meeting of a class without permission of the instructor of the course and the dean of the college in which the student is enrolled. All change of sections must be approved by the department head or the instructor of the class the student wishes to enter.

All official withdrawals from the University
are made through the Office of Special Services. It is important that all students who intend to withdraw prior to the completion of a quarter report their withdrawal to this office.

Withdrawal from University before Mid-Term (35 calendar days). If an undergraduate student officially withdraws from the University before the mid-term (for summer quarter drop deadlines, see summer quarter timetable), the grade of W will be recorded in all courses in which the student is currently enrolled. In cases of withdrawal prior to mid-term, the Office of Special Services will verify the date of withdrawal to the Registrar, who will then inform the instructors that the grade in those courses is automatically W.

Graduate students should consult the Graduate School Catalog for regulations concerning withdrawal from the University.

Dropping Courses before Mid-Term (35 calendar days). A course may be dropped with a W (withdrawal) before mid-term (for summer quarter drop deadlines, see summer quarter timetable). A drop form must be executed by the student and submitted to the Registrar. Prior to mid-term neither the instructor's nor the adviser's permission is required. A course dropped during the first five class days in any quarter will not appear on the student's permanent record.

Graduate students should consult the Graduate School Catalog for regulations concerning the dropping of courses.

Dropping Courses or Withdrawing from the University after Mid-Term (35 calendar days). An undergraduate student withdrawing from a course, or from the University after mid-term will receive the grade of F unless it can be clearly demonstrated that one of the following conditions exists:

a. illness or injury of the student as verified by the student health service or private physician;

b. serious personal or family problems as verified by the student's parents, minister, physician, etc.;

c. necessary change in work schedule as verified by the student's employer;

d. change of major to a program in which the course that the student wishes to drop would not normally be used in satisfying degree requirements. Acceptance of the student into the new program should be verified by the dean of the college administering the program;

e. financial inability to continue at the University;

f. call to active military service.

A student will not be permitted to drop a course after mid-term simply to avoid a poor grade.

A student wishing to withdraw from a course, or from the University after the withdrawal deadline, must present a request, together with evidence of extenuating circumstances, to the Office of Special Services. If the request is approved, this office will notify the Registrar, who will enter the grade(s) of W on the student's permanent record.

Graduate students should consult the Graduate School Catalog for regulations concerning the dropping of courses and withdrawal from the University.

Course Numbers and Levels

Each course offered by the University is identified by the name of the department offering the course and a four-digit course number. These numbers indicate course level, as follows.

<table>
<thead>
<tr>
<th>Course Numbers</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000-0999</td>
<td>Non-credit; preparatory</td>
</tr>
<tr>
<td>1000-2999</td>
<td>Lower division—primarily for freshmen and sophomores</td>
</tr>
<tr>
<td>3000-4999</td>
<td>Upper division—primarily for juniors and seniors; usually available for graduate credit; when taken for graduate credit, the letter &quot;G&quot; will precede the course credit hours on the grade report</td>
</tr>
<tr>
<td>5000-5999</td>
<td>Graduate; sometimes available for undergraduate credit; when taken for undergraduate credit, the letter &quot;U&quot; will precede the course credit hours on the grade report</td>
</tr>
<tr>
<td>6000-6999</td>
<td>Advanced graduate; open to graduate students only</td>
</tr>
<tr>
<td>8000-8999</td>
<td>Law; occasionally open to other qualified students</td>
</tr>
</tbody>
</table>

To be eligible for upper division work a student must have attained junior (third-year) status, as defined in the following section, unless approval is granted by the dean of the student's college. This rule applies to transfers, as well as those who have previously attended the University. A cumulative grade point average of at least 2.00 is required to begin upper-division work.

Classification

Undergraduate, law and veterinary medicine students are classified according to the chart above, on the basis of quarter hours passed.

To be considered as a full-time undergraduate student in any quarter, a student must be enrolled in 12 quarter hours, including the full summer quarter. Six hours for each separate term of the summer session are required for full time classification. Audit hours are not considered in the computation.

Teacher Certification

Teacher certification is a responsibility of the College of Education of The University of Tennessee, Knoxville. Students desiring certification must meet general education, professional education, and area of specialization requirements as described in the College of Education section of this catalog. In keeping with requirements of the Tennessee Department of Education, programs leading to teacher certification include a nine (9) hour requirement in Health or Physical Education.

Honors Courses

Courses specifically designed as honors courses will be designated "Hon." Individuals selected on the basis of ACT scores and previous academic performance may be enrolled. There is no limit on the number of credits that may be earned in these courses except in the senior readings courses not requiring regular class attendance; these senior readings courses may total not more than nine hours credit toward graduation. (In the fields of science offering four-hour courses the total may be twelve hours.) There is also a non-departmental honors course open to a limited number of freshmen entering in any college.

Auditors

Students registered for credit courses may, enter classes as auditors, subject to the approval of the instructor whose class is visited. Auditors are under no obligation of regular attendance, preparation, recitation, or examination. They receive no credit. They may not take part in class discussion or laboratory or field work.

Students not registered for credit courses may be admitted as auditors only with the consent of the Director of Admission; they are required to register, pay the fees for auditors, and to have class cards for the courses they elect to attend.

Minimum Class Size

An undergraduate course will not be given for fewer than five students except by permission of the Vice Chancellor for Academic Affairs.

Undergraduate Retention Standards

To be eligible to continue at The University of Tennessee, Knoxville an undergraduate student must maintain a cumulative grade point average at or above the minimum acceptable level shown in the chart below. There are additional restrictions in individual programs, such as nursing and architecture, and the appropriate section of this catalog should be consulted.

<table>
<thead>
<tr>
<th>Total Quarter Hours</th>
<th>Minimum Acceptable</th>
<th>Grade Point Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-35.9</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>36-83.9</td>
<td>1.50</td>
<td></td>
</tr>
<tr>
<td>85-149.9</td>
<td>2.00</td>
<td></td>
</tr>
</tbody>
</table>

A student whose grade point average falls below the minimum acceptable level in any quarter will be placed on academic probation for the subsequent quarter of enrollment. During the probationary quarter the student must attain the minimum acceptable average shown above, or a 2.00 average for that quarter, or be dropped from the University.
A student who has attempted 150 hours or more will be checked for graduation requirements only, except when on academic probation. To be on academic probation, a student must attain a cumulative average of 2.00 or 2.00 for that quarter, or be dropped from the University.

A student who has been conditionally readmitted and fails to meet the regular University standards of retention during the probationary quarter, or any subsequent quarter before attaining good standing, will be dropped from the University and may not be considered for readmission for three academic quarters.

A student who has been previously dropped and readmitted will be placed on academic probation. Failure to meet the regular University standards of retention during the probationary quarter, or subsequent quarters prior to attaining good standing, will result in the student's being dropped from the University and being ineligible to apply for admission for three academic quarters.

**Readmission**

A student in good academic standing who has withdrawn from school or has been dismissed for a reason other than the summer quarter must make application for readmission.

A student who has been dropped academically must make application for readmission. Readmission is automatic. Application must be made at least six weeks before registration. The Committee on Readmissions may approve or refuse the application for readmission. Students are strongly encouraged to appear in person before the Committee on Readmissions.

Former students who have been enrolled at accredited colleges or universities must apply for readmission. An official transcript and an acceptable combined grade point average is required for readmission.

**General Policies**

A. Any student who attains a quarterly average of less than 2.00 may continue in residence at the University, even though the cumulative average does not meet the minimum acceptable level.

B. Summer quarter is considered a regular academic quarter in satisfying the requirement of compulsory absence due to academic deficiency.

C. Quarter hours attempted are used only for determining the minimum acceptable level for the grade point average. Satisfactory/no credit hours are included in hours attempted but excluded in calculating minimum cumulative grade point average requirements for graduation.

D. Students who transfer to other accredited colleges or universities must submit official transcripts and have an acceptable combined grade point average before being readmitted to the University.

E. Correspondence courses are open to students regardless of admission or readmission status.

F. To register for credit courses in any branch center or division of the University controlled by the Knoxville campus (except correspondence courses), a student must meet the admission or readmission regulations that govern courses for credit at the Knoxville campus.

G. The Committee on Readmissions shall consider the applicant's total record, including the academic record and other factors which may be expected to influence academic performance. A student will not be readmitted when the record indicates a very low probability of success in college work.

H. No student refused by the Committee on Readmissions may be permitted to re-enter the University without the approval of the Committee.

I. There are no tentative readmissions.

J. Students in architecture and nursing are advised to note the special requirements as stated in those sections of this catalog.

**Comment: The University of Tennessee, Knoxville is committed to helping students overcome academic deficiencies. A letter advising of academic probation will be sent about the same time as the quarterly grade report. This letter will advise conferring with the student's dean before completing registration for the probationary quarter.**

**General Requirements for a Bachelor's Degree**

To receive a bachelor's degree from The University of Tennessee, Knoxville, a student must complete the requirements listed below. It should be noted that some of the colleges and schools within the University have special requirements above and beyond those stated here, and students are advised to consult the appropriate section of this catalog for any further degree requirements.

1. Complete satisfactorily all requirements of the curriculum for the bachelor's degree, as described in the portion of this catalog devoted to the college or school offering the curriculum. Curricular requirements change frequently, and students should note the caution on the second page of this catalog. A student is allowed to satisfy requirements for a bachelor's degree under any curriculum in effect during the student's attendance at UT. Knoxville provided the curriculum has been in effect with the approval of the Board of Trustees of the University at the time the student is transferring.

2. Maintain a cumulative grade point average of at least 2.00 on all college work attempted at all institutions attended.

3. Maintain a grade point average of at least 2.00 on all work attempted at The University of Tennessee. A 2.00 average is obtained by having two quality points for each quarter hour attempted, not including hours for which grades of NC, S, and W have been received.

4. Maintain a grade point average of at least 2.00 on the last 45 hours (last three quarters as a minimum) of work at The University of Tennessee. A 2.00 average is obtained by having two quality points for each quarter hour attempted, not including hours for which grades of NC, S, and W have been received.

5. Complete the last 90 hours of credit offered for the bachelor's degree at an accredited senior college.

6. Complete the last 45 hours of credit offered for the bachelor's degree in residence at The University of Tennessee, Knoxville. In the College of Agriculture at least twenty-seven quarter hours of upper division technical agriculture approved by the student's faculty adviser must be completed at The University of Tennessee, Knoxville. Work taken for credit through the University's Continuing Education programs in courses presented by the faculty at the Knoxville campus may be counted as part of this requirement, with the exception of the correspondence credit limitation noted below. Special arrangements to allow work taken at other University of Tennessee campuses to be counted as part of this requirement must be approved by the dean of the student's major college or school.

7. Comply with the requirements of the State of Tennessee's law that one unit of American history from high school or nine quarter hours of collegiate work be satisfactorily completed. Requirement is effective for those graduating July 1, 1978 or afterwards. Completion of History 2510-20 (or History 2518-28) and History 2511 or 2521 will satisfy the requirement. History 3311 or 3321 may be used in lieu of three hours of American History.

8. Satisfy all financial obligations (fees or fines) owed to the University.

9. Pay to the Treasurer's Office a $10.00 graduate fee no later than the beginning of the quarter of graduation.

10. File an application for a degree with the Office of the Registrar, Room 209 Student Services Building, no later than six weeks before the date of graduation.

**SECOND BACHELOR'S DEGREE**

A student who holds a bachelor's degree may receive a second bachelor's degree from The University of Tennessee, Knoxville, by satisfying the following requirements.

1. Meet all requirements for both degrees, as specified above.

2. Complete at least forty-five quarter hours beyond the first bachelor's degree.

3. Attend the University for at least three quarters beyond the minimum time required for the first bachelor's degree.

**Seniors Eligible for Graduate Credit**

A senior at The University of Tennessee, Knoxville who needs 45 quarter hours or less to complete the requirements for a bachelor's degree, and has at least a 3.00 grade point average, may take sufficient work for graduate credit to fill out a schedule of 15 hours of combined undergraduate and graduate work per quarter, subject to the approval each quarter of the Vice Chancellor for Graduate Studies and Research.

**Correspondence Work**

A student may offer by correspondence as much as one-fourth of the total hours required for the degree sought and have this work count toward the degree. Credit for undergraduate courses in correspondence in
the major subjects shall be limited to one-fourth of the total credit hours required. Correspondence credits are not recognized by the College of Law or—except by prior permission—by the Medical Units.

All courses taken by correspondence for which degree credit is given must meet degree program requirements of the Knoxville campus. Degree credit will not be granted for correspondence courses taken at an institution other than the University of Tennessee by a UTK student if an equivalent correspondence course is available from the University of Tennessee Correspondence program.

A senior may take only nine hours of the last year's work (the last forty-five hours offered for the degree) by correspondence, and this must be taken with The University of Tennessee, Knoxville. If the student is a senior transfer, no work may be taken by correspondence or extension.

Students taking work for certification purposes should consult the State Department of Education of their respective states concerning the amount of extension and/or correspondence credit allowed for a teacher's certificate.

**Proficiency Examination**

A student may apply for proficiency examinations in selected undergraduate subjects in the College of Agriculture, Business Administration, Education, Engineering, Home Economics, and Liberal Arts, in the School of Nursing (Knoxville), and in the Department of Military Science. A student should present evidence that abilities and attitudes have been developed comparable to those of students who have taken the course. The application must be approved by the department offering the course. A fee of $10.00 will be charged per course. A student who "passes" a proficiency exam is allowed a choice of taking the grade on the exam (A, B, C, or C) or taking an S as credit in the course. Exception to this is when a proficiency course is graded only on an S/NC basis. By taking an S a student would not affect the grade point average. The maximum credits obtainable through proficiency examinations and the use of proficiency examinations to remove failing grades (also the grade of I) are determined by the department offering the proficiency examination.

When approved by a given department, nationally recognized examinations, such as the appropriate subject examinations of the College Level Examination Program (CLEP) of the College Entrance Examination Board, may be used as proficiency examinations in one or more courses offered by that department. In such cases the final decision as to whether or not credit is to be given on this basis rests with the department awarding credit, as does the determination of the number of credit hours and the specific courses for which such examinations are to be taken as evidence of acceptable proficiency. The University will charge a fee of $5.00 for the evaluation of such an examination.

**Honors Categories for Graduation**

The diplomas of graduating seniors show honors categories based on the following scale:

- "honors" 3.00 through 3.39
- "high honors" 3.40 through 3.74
- "highest honors" 3.75 through 4.00

These honors categories are based on a student's cumulative average at the end of the quarter preceding the graduation quarter. The honors category is also based on both the average earned at UT. Knoxville and the combined average on all college work attempted, with the lower of the two averages determining the honors category.

If, at graduation, a student's cumulative grade point average would allow a higher honors category than that determined at the end of the quarter preceding the graduation quarter, the student may, upon written request, receive a substitute diploma indicating the higher category.

**Accelerated Program**

The University operates on a four-quarter plan, and a majority of its courses, especially at the lower division, are offered every quarter. Through appropriate arrangements of courses and attendance during the summer quarters, students may frequently complete their degree programs in less than four years. A student's faculty advisor should be consulted for assistance in planning an accelerated program.

**Advanced Military Science and Air Force Aerospace Studies**

Students who elect to enroll in the advanced military courses (junior and senior years) are obligated by written agreement with the government to complete the courses and to accept a commission if tendered.

**Degrees**

**AT KNOXVILLE**

- Graduate School
  - Doctor of Business Administration.
  - Doctor of Education.
  - Doctor of Philosophy.
  - Specialist in Education.
  - Master of Arts.
  - Master of Arts in College Teaching.

- Master of Business Administration.
- Master of Engineering.
- Master of Fine Arts.
- Master of Mathematics.
- Master of Music.
- Master of Public Administration.
- Master of Public Health.
- Master of Science.
- Master of Science in Library Science.
- Master of Science in Planning.
- Master of Science in Social Work.

- College of Agriculture
  - Bachelor of Science in Agriculture.
  - Bachelor of Science in Agricultural Engineering.
  - Bachelor of Science in Forestry.
  - Bachelor of Science in Wildlife and Fisheries Science.

- School of Architecture
  - Bachelor of Architecture.

- College of Business Administration
  - Bachelor of Science in Business Administration.

- College of Communications
  - Bachelor of Science in Communications.

- College of Education
  - Bachelor of Science in Education.

- School of Health, Physical Education and Recreation
  - Bachelor of Science in Education.

- College of Engineering
  - Bachelor of Science in Aerospace Engineering.
  - Bachelor of Science in Chemical Engineering.
  - Bachelor of Science in Civil Engineering.
  - Bachelor of Science in Electrical Engineering.
  - Bachelor of Science in Engineering Science.
  - Bachelor of Science in Industrial Engineering.
  - Bachelor of Science in Mechanical Engineering.
  - Bachelor of Science in Metallurgical Engineering.
  - Bachelor of Science in Nuclear Engineering.

- College of Home Economics
  - Bachelor of Science in Home Economics.

- College of Law
  - Doctor of Jurisprudence.

- College of Liberal Arts
  - Bachelor of Arts.
  - Bachelor of Fine Arts.
  - Bachelor of Music.
  - Bachelor of Science in Chemistry.

- School of Nursing
  - Bachelor of Science in Nursing.

- College of Veterinary Medicine
  - Doctor of Veterinary Medicine.

- CENTER FOR THE HEALTH SCIENCES
  (See CHS Bulletin)

- Graduate School—Medical Sciences
  - Doctor of Philosophy.
  - Master of Science.

- College of Medicine
  - Doctor of Medicine.

- College of Dentistry
  - Doctor of Dental Surgery.
  - Master of Science in Orthodontics.
  - Master of Science in Pedodontics.
Colleges of Pharmacy
Bachelor of Science in Pharmacy.
Doctor of Pharmacy.

Colleges of Nursing
Bachelor of Science in Nursing.
Master of Science in Nursing.

College of Community and Allied Health Professions
Bachelor of Science in Cytotechnology.
Bachelor of Science in Dental Hygiene.
Bachelor of Science in Medical Records Administration.
Bachelor of Science in Medical Technology.
Bachelor of Science in Physical Therapy.
Bachelor of Science in Radiological Technology.

AT CHATTANOOGA
(See Bulletin of UT Chattanooga)
Bachelor of Arts.
Bachelor of Music.
Bachelor of Science.
Bachelor of Science in Engineering.
Bachelor of Science in Nursing.
Master of Business Administration.
Master of Education.
Master of Science.

AT MARTIN
(See Bulletin of UT Martin)
Associate of Arts in Nursing.
Bachelor of Arts.
Bachelor of Science.
Bachelor of Science in Agriculture.
Bachelor of Science in Business Administration.
Bachelor of Science in Chemistry.
Bachelor of Science in Education.
Bachelor of Science in Engineering Technology.
Bachelor of Science in Home Economics.
Bachelor of Science in Criminal Justice.
Bachelor of Science in Natural Resources Management.
Master of Science in Education.
Master of Science in Home Economics.

AT NASHVILLE
(See Bulletin of UT Nashville)
Associate of Arts in Fire Science.
Associate of Arts in Nursing.
Associate of Arts in Office Administration.
Bachelor of Arts.
Bachelor of Science.
Bachelor of Science in Business Administration.
Bachelor of Science in Education.
Bachelor of Science in Engineering.
Bachelor of Science in Nursing.
Master of Business Administration.

FEES AND EXPENSES

Maintenance Fee. All students, including both in-state and out-of-state, are required to pay the established maintenance fee.

Tuition. Tuition is free to residents of Tennessee. However, tuition is required of all students who are classified as non-residents for fee assessment purposes.

Student Hospitalization and Medical Insurance. The University makes available, by contract with an insurance company, group hospitalization insurance expressly for students. Changes in the group plan may be authorized by the University after annual review depending on prevailing hospital costs in the Knoxville area.

As would be expected with a large student group contract, a low premium cost for the individual student is obtained. Students are urged to avail themselves of this insurance, or other comparably adequate insurance, since the paying for hospital care is the student's own responsibility.

Information about the insurance is mailed by the company to the student's home and participation is solicited. Enrollment in the insurance program remains open for a designated period after classes begin. Students wishing to avail themselves of this insurance after arriving on the campus may obtain the application from the Office of Student Health Services. Whether application is made from the home or from the campus, the student applies directly with the Knoxville agent of the insurance company. Enrollment in insurance is not a part of registration for classes.

NOTE: Some family policies do not cover the dependent child after the nineteenth birthday. The family hospitalization insurance policy should be reviewed from this aspect.

Military Deposits. All students registering for Air Science and members of the band are required to make a deposit of $35.00 each to cover damage to or loss of property issued to them. The unused portion of the deposits will be returned to the students after completion of training.

Identification Card. ID cards, issued to all students, are prepared during registration of the first quarter a student enrolls in the University and are validated quarterly thereafter. These cards are required for many purposes such as use of library facilities, check cashing facilities in the UT Bookstore, and admission to various athletic, social, and cultural events. These cards are non-transferable and may not be duplicated.

IDENTIFICATION CARDS MUST BE CARRIED AT ALL TIMES FOR PURPOSES OF IDENTIFICATION. Lost or stolen cards should be replaced by contacting the Student ID Card Office at Room 344, University Center.

UNIVERSITY FEES

University fees and other charges are determined by the Board of Trustees and are subject to change without notice. The general fees in effect at the time of publication are as follows:

MAINTENANCE FEE
Undergraduate
Student... Per Quarter $150.00
Graduate and Law
Students... Per Quarter $160.00

TUITION (additional for out-of-state students) Per Quarter $300.00

NOTE: In lieu of the above charge for tuition and/or maintenance fee, part-time students may elect to pay fees computed by the quarter hour credit (or audit) at the rates shown below, total charge not to exceed the regular maintenance fee for in-state students or the maintenance fee plus tuition for out-of-state students.

Undergraduate Students:
In-State $16.00 per quarter hour or fraction thereof; minimum charge $48.00
Out-of-State $38.00 per quarter hour or fraction thereof; minimum charge $114.00

Graduate and Law Students:
In-State $22.00 per quarter hour or fraction thereof; minimum charge $66.00
Out-of-State $52.00 per quarter hour or fraction thereof; minimum charge $156.00

UNIVERSITY PROGRAMS AND SERVICES FEE Per Quarter $15.00

All undergraduate and graduate students taking in excess of six quarter hours per quarter will be assessed a University Programs and Services Fees of $15.00 per quarter for the fall, winter and spring quarters and $12.00 for the summer quarter. Part-time students taking six quarter hours or less will be assessed at the rate of $1.00 per quarter hour or fraction thereof (minimum charge $3.00) but are not entitled to admission to general activities programs. This fee is not refundable.

Knoxville campus students taking a course load of six hours may elect to pay the full Programs and Services Fee. Graduate and teaching assistants as well as fellowship students who may have waiver of fees (tuition and/or maintenance) must pay the appropriate University Programs and Services Fee.

Students enrolled exclusively in Evening School or at Oak Ridge and Kingsport Centers are exempt from the University Programs and Services Fee.

Activities cards are nontransferable and may not be duplicated.

MUSIC FEE
One half-hour lesson per week, per quarter $20.00
One hour lesson per week, per quarter $40.00
Payable by eligible full-time students receiving individual instruction in music.

GRADUATION FEE
Bachelor's Degree $10.00
Master's Degree $16.00
Doctoral Degree (except J.D.) $41.00
Payable at the beginning of the quarter in which the candidate is to be graduated. This fee is non-refundable and is valid for four quarters.

DELAYED REGISTRATION SERVICE FEE
Graduated Late Service Fee
Students who preregister and for whom a class schedule (either complete or partial) is available on the regular registration dates must pay their fees (or make satisfactory arrangements with the Treasurer's Office) on these dates. Effective the first regular business day following the last regular registration day a graduated late service fee of $20.00 per day will be charged during the next ensuing five regular business days.

Students who do not preregister but register through the "secondary" registration procedures will be granted two additional days after the final regular registration day to
pay their fees before the graduated late service fee begins. Such students will be charged the graduated late service fee beginning with the third regular business day following the last regular registration day.

(Minimum charge $6.00 third day, $8.00 fourth day, $10.00 fifth day.)

**Additional Late Service Fees**

All students who have not completed registration and paid their appropriate charges (or made satisfactory arrangements with the Treasurer's Office) within five regular business days after the last regular registration day will be charged an additional $10.00 late service fee (total $20.00).

This $10.00 service fee is applicable to extension accounts and room and board charges which are not paid (or satisfactory arrangements made for deferral) within five regular business days after the date payment was due.

Students who have not completed registration and paid their appropriate charges (or made satisfactory arrangements with the Treasurer's Office) within ten regular business days after the last regular registration day will be charged a second additional $10.00 late service fee (total $30.00) and may, at the discretion of the University, be automatically withdrawn from school and assessed the appropriate fees as of the date dropped.

**RESTATEMENT SERVICE FEE $10.00**

A student withdrawn (or subject to withdrawal) for the above reason (or any other reason) who may be permitted to continue enrollment for the quarter will be charged a $10.00 reinstatement service fee.

**RETURN CHECK SERVICE FEE POLICY**

In the event a check given to the University in payment of initial fees and charges fails to clear the bank, the late registration service fee in effect at the time the check is redeemed (or suitable arrangements made) will be assessed, plus a $10.00 Return Check Service Fee (maximum $30.00). Any student who does not respond promptly and is thereby subject to withdrawal from the University will be assessed the $10.00 Reinstatement Service Fee and the $3.00 Delayed Payment Service Fee (maximum $43.00).

For other student checks in the amount of $30.00 or less (including checks for registration and related charges), returned by the bank, the service charge will be $5.00 if the bad check is made good within five days from the date of notice and $10.00 if made good after five days from the date of notice; for a bad check in excess of $30.00 (except for initial registration fees), the service charge will be $10.00 if the bad check is made good within the days from the date of notice and $15.00 if made good after five days from the date of notice. If it becomes necessary to withdraw a student from school for failure to clear a check, the $10.00 Reinstatement Service Fee will be added to the return check service charges.

Only under extenuating circumstances will a student be reinstated after official withdrawal for failure to pay fees or redeem a bad check.

All students are required to have a validated receipt to complete the registration procedure. This includes graduating and teaching assistants and others whose fees may be billed, prepaid, or waived. Delayed registration service fees are also applicable to such students.

No student is authorized to attend classes who has not obtained a class schedule from the Office of the Dean of Admissions and a validated fee receipt from the Treasurer's Office.

The University is authorized by statute to withhold diplomas, grades, transcripts and registration privileges on any student until student debts and obligations (other than Student Loan Fund notes) owed to the University are satisfied.

**DEFERRED PAYMENT SERVICE FEE $3.00**

Applicable when the payment of any part of a student's account is deferred by satisfactory arrangement with the Treasurer's Office, including accounts which must be billed to outside agencies, organizations and institutions. The University is authorized to charge any additional charge (of-out-of-state tuition, music fee, room and board adjustments, etc.) is not paid within five regular business days after the date it was incurred. Students are expected to take the initiative to pay all University obligations promptly.

**APPLICATION FEE $10.00**

Each undergraduate, graduate, and College of Law application for admission must be accompanied by a fee of $10.00 before it will be processed. This fee is not refundable.

**PROFICIENCY FEES $10.00**

Fees for proficiency and substantiating examinations are $10.00 per course. See page 22 for information on proficiency, CLEP, or other organized examinations.

**CO-OP REGISTRATION FEE $5.00**

If credit is received, the fee will be determined by applying the appropriate quarterly hour rate.

**AUDITOR’S FEE**

Fees for courses being audited are the same as those for credit. Auditors will not take the examinations, receive credit, or participate in class discussions.

**SPECIAL STUDENT AND POST-BACCALAUREATE FEES**

Special students pay fees at the undergraduate rate. Post-Baccalaureate students pay fees at the graduate rate although graduate credit is not given for course work.

**REFUND OF FEES AND ADJUSTMENTS**

Upon receipt of a class schedule, partial or complete, a student is responsible for the payment of appropriate fees. Withdrawal from school for the quarter, after receiving a schedule, even though classes have not been attended or fees paid, must be by official notification to the Withdrawal Office, Student Counseling and Services Center, 900 Volunteer Blvd.

The effective date of withdrawal is the date the Withdrawal Office is notified by completion of the official withdrawal request form. The appropriate percentage of fees will be charged unless this action is completed by the close of the last day designated for regular registration and before the first official day of classes for the quarter. Failure to promptly notify the Withdrawal Office when withdrawing will result in a lower percentage fee assessment. Withdrawal does not cancel fees and charges already incurred. The drop/add procedure must not be used to withdraw from classes for the quarter.

For a regular academic quarter, withdrawal within 7 calendar days beginning with the first day following regular registration permits an 80 percent fee refund. Withdrawal between 8 and 21 calendar days following regular registration permits a 60 percent fee refund. Withdrawal between 15 and 21 calendar days following regular registration permits a 40 percent fee refund. Withdrawal between 22 and 28 calendar days following regular registration permits a 20 percent fee refund. Refunds, in accordance with the withdrawal refund policy, will be made after the drop/add deadline.

On the Knoxville campus for a regular quarter no adjustment is due on courses dropped later than 21 calendar days after the last regular registration day and then only if the remaining hours are not at or above the appropriate quarter hour rate plus the adjusted charge for the course(s) dropped is less than the maximum tuition and/or registration fee or the amount charged and paid. There is no charge for courses dropped during the first seven calendar days following regular registration if three or more quarter hours remain on the student’s schedule. A course on a student’s schedule is not dropped until a drop/add slip has been processed and recorded by the Admissions and Records Office. Any refund due for dropped courses will be made after the final audit at the end of the quarter.

Rental charges and adjustments are determined by the Office of Residence Halls in accordance with the terms of the housing agreement or contract.

Note: All charges and refunds will be made to the nearest dollar amount. All charges are subject to subsequent audit and verification. Errors will be corrected by appropriate addition or adjustment and refund. Other information on fees, refunds, and adjustments is given in the Timetable (Schedule of Classes) for each quarter.

**Summer Quarter Fees and Expenses**

Fees and expenses for the summer quarter are the same as for the other quarters during the academic year with the exception of the University Programs and Services Fee as noted above.

Although the summer quarter is divided into terms of varying lengths, tuition and fees are assessed at the regular quarter hour rate up to the maximum charge for a complete regular quarter.

The refund policy covering withdrawals and dropped courses for the summer quarter is based on the length of the term for the course(s) dropped. No refund is applicable to term courses dropped later than fourteen calendar days after the regular registration day for the course(s) involved.

**Estimate of Expenses**

The following estimates of the necessary
expenses for an academic year are average. Actual expenses vary greatly according to the habits of economy or extravagance of the individual student. The room and meal estimates are averages based on residence halls, one-bedroom apartments, and off-campus housing. Estimates for equivalent accommodations and meals elsewhere will usually be somewhat higher.

Undergraduate and Law

<table>
<thead>
<tr>
<th></th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance</td>
<td>$ 450</td>
</tr>
<tr>
<td>Programs &amp; Services</td>
<td>$ 450</td>
</tr>
<tr>
<td>Room and Meals</td>
<td>$1,290</td>
</tr>
<tr>
<td>Books, Supplies</td>
<td>$ 215</td>
</tr>
<tr>
<td>Total</td>
<td>$2,000</td>
</tr>
<tr>
<td>Additional</td>
<td>$3,000</td>
</tr>
</tbody>
</table>

These figures give a fair idea of average expenses, exclusive of clothing, travel, and pocket money. Expenditures for extracurricular activities are not included in the above.

Housing

The University provides modern residence facilities in order to give students comfortable housing at reasonable cost and with an atmosphere conducive to academic achievement and personal development.

Undergraduate Students. Single freshman students are required to live in University residence halls; however, space is available unless they commute from the home of their parent or legal guardian. Other single students are encouraged to reside in University facilities. Housing contracts are a commitment for the academic year, September to June, or for shorter periods if the student enters the University during winter or spring. A Housing Application will be mailed as a part of the Application for Admission. Residence halls assignments for the academic year are made in the summer. The student must be admitted to the University prior to assignment. If a student withdraws from the University, the housing contract is cancelled in accordance with the policies stated in the contract. Students assigned to residence halls on the room and board plan will be given contracts written to include both room and board. A contract for housing signed by a student is binding for the term of contract and is rigidly enforced by the University.

Additional information pertaining to single student housing may be obtained from the Office of Residence Halls, The University of Tennessee, 37916.

Off-Campus Housing. Students living in off-campus housing are expected to observe the same rules of conduct and standards that are applicable to on-campus housing. The student is responsible for obtaining off-campus housing. The University does not inspect or approve these facilities. Terms and conditions for the rental of off-campus housing are between the student and the landlord. Information and assistance in locating off-campus housing is available in the Off-Campus Housing Office located in 311 University Center.

Graduate Students. Single graduate students may be assigned to the University's residence halls or the single student apartments. Special graduate floors are available upon request. For information concerning University residence facilities, please refer to the appropriate paragraphs above describing program graduate and off-campus housing.

Married Students. The University has provided modern apartment facilities in several locations for married students with families. Information on application for these facilities may be secured from the Office of Rental Properties, The University of Tennessee, 37916.

Food Service Facilities

Excellent University-operated food service facilities have been provided. They are air-conditioned, conveniently located in relation to residence halls, and serve nutritious food at reasonable prices. The University recognizes the educational role that its food service facilities play in student life and group living. The Food Services Department employs a skilled dietetic and kitchen staff to ensure that the student gets the highest quality meal at the lowest possible cost.

Room and board meal arrangements are available.

Student Financial Aid

The University of Tennessee offers a comprehensive program of financial aid for full-time students who otherwise would not be able to attend the University. Through this financial aid program, eligible students may receive one or more types of assistance to help pay college expenses.

Financial need is defined as the difference between a family's resources and the total expenses of attending the University. If there is a deficit, the student is considered to be in need of financial assistance. To assist in determining the need for financial aid, the University of Tennessee utilizes the need analysis system of the College Scholarship Service (CSS). Through the use of the CSS forms, the Parent's Confidential Statement (PCS) and the Financial Aid Form (FAF), the Financial Aid Office determines the amount of need the parents and students could generally be expected to contribute toward meeting educational expenses. For more information on the determination of need, please refer to the brochure entitled "Financial Assistance For Students."

The University of Tennessee has three basic types of financial aid—scholarships and grants, loans, and part-time employment. These may be awarded individually or in combination according to the needs of the student.

Scholarships and Grants

Scholarships. The University of Tennessee (Knoxville) scholarship program for new and currently enrolled students is made possible through funds provided by the University, outside foundations, estates, private businesses, and individuals, and alumni. The majority of these scholarships are coordinated by the Financial Aid Office. Some undergraduate scholarships for currently enrolled students are administered in the various schools and departments of the University.

Most scholarships are awarded to students who demonstrate strong academic achievement and are in need of assistance. There is, however, an academic merit scholarship program, based only on academic achievement. If you wish to compete for merit scholarships only, you must submit an Application for Student Financial Aid. A financial statement is not necessary. Academic achievement is judged for entering freshmen students by the applicant's secondary school academic record and scores on the American College Test Battery (ACT). Academic achievement for currently enrolled students and transfer students is judged by the applicant's college cumulative grade point average. All scholarships, including merit scholarships, are highly competitive; despite the generosity of University friends and alumni, there are not enough funds to provide scholarship aid to all qualified students. Annual scholarship stipends range from $100 to $750.

Most scholarships are awarded for one year, with the recipient competing for scholarships each year or enrollment in the University. The Application for Student Financial Aid is a general application, and all applicants will be considered for every scholarship coordinated through the Financial Aid Office. High school students should contact their school counselor or principal concerning scholarships offered by local individuals, foundations, and other organizations.

Supplemental Educational Opportunity Grants. This is a program of direct grants available to entering freshmen, transfer, and currently enrolled undergraduate students with exceptional financial need. Grants may be extended for a maximum of 12 quarters and must be matched dollar for dollar by other sources of student financial aid, i.e., scholarships, loans, and/or earnings from University part-time employment. A Supplemental Educational Opportunity Grant may not be less than $200 or more than $1,500, and exceed one-half of the student's need for assistance. The above regulations and provisions of the Supplemental Educational Opportunity Grant are subject to change by federal regulations and action.

Nursing Scholarship Program. The purpose of this program is to assist students of exceptional financial need who are enrolled as full-time students in a course of study leading to a baccalaureate degree or a graduate degree in nursing.

The amount of scholarship which a student may receive depends upon financial need. The maximum scholarship available for any student in a two-month period is $2,000. The above regulations and provisions of the Nursing Scholarship Program are
subject to change by federal legislative action.

Student Loans

National Direct Student Loans. Long-term loans are available primarily through the National Direct Student Loan. Proven need for financial assistance determines your eligibility.

Loan repayment and interest payments on National Direct Student Loans are deferred until after graduation or as long as the individual remains in half-time attendance at an accredited institution of higher education in the United States. Repayment may also be deferred for a period of three (3) years while the borrower is serving in the Armed Forces, Peace Corps, or Vista. Interest is 3 percent per year on the unpaid balance. The maximum repayment period is ten (10) years with the current minimum annual repayment of $180.00 or 10 percent of the accumulated loan, whichever is greater.

If upon graduation you become a full-time teacher in a public or non-profit school which is designated by the commissioner as having a high enrollment of low-income families or become a teacher in the handicapped, 15 percent of the total principal plus interest is cancelled for the first and second year of teaching, 20 percent for the third and fourth years, and 30 percent for the fifth year. If you graduate you become a staff member in a preschool program which is operated for a period comparable to a full school year, 15 percent of principal plus interest will be cancelled for each year of service.

Cancellation for up to 50 percent of the loan will also be given at the rate of 12½ percent of the total principal plus interest for each year of Armed Forces service in an area of hostility.

An undergraduate may be extended a maximum annual loan of $1250 to an accumulated loan total of $5000. Graduate level students may be extended annual loans of $2500 to a maximum accumulated loan total of $10,000. The above regulations and provisions of the National Direct Student Loan Program are subject to change by federal legislative action.

The University of Tennessee Student Loans. Student loans from University sources are available to currently enrolled students with a 2.0 or above cumulative grade point average. You can be extended a loan of up to $250 per quarter to an annual maximum of $750. One surety or cosigner is required for each promissory note and a new promissory note must be completed for each loan installment. The interest is 3 percent per annum payable annually on the anniversary date of the note. The loan is made for a specific time period and is due at the end of a stated number of years from the date of the note. Extensions may be obtained if you continue your academic studies at the graduate school level. The borrower may, with approval, pay all or part of the loan at any time before the maturity date.

Nursing Student Loans. The Nursing Student Loan is available to students who are enrolled or admitted as students in a course of study leading to a baccalaureate degree in nursing and who show need of assistance in order to pursue their course of study. The program provides a long-term, low-interest loan with repayment beginning nine months following termination of half-time study at an accredited school of nursing. Repayment may also be deferred for a period up to three years while the borrower is serving in the Armed Forces, Peace Corps, or Vista. Interest is 3 percent per year on the unpaid balance. The maximum repayment period is ten (10) years with the current minimum annual repayment of $180.00 or 10 percent of the accumulated loan, whichever is greater.

If upon graduation you become a full-time teacher in a public or non-profit school which is designated by the commissioner as having a high enrollment of low-income families or become a teacher in the handicapped, 15 percent of the total principal plus interest is cancelled for the first and second year of teaching, 20 percent for the third and fourth years, and 30 percent for the fifth year. If you graduate you become a staff member in a preschool program which is operated for a period comparable to a full school year, 15 percent of principal plus interest will be cancelled for each year of service.

Cancellation for up to 50 percent of the loan will also be given at the rate of 12½ percent of the total principal plus interest for each year of Armed Forces service in an area of hostility.

An undergraduate may be extended a maximum annual loan of $1250 to an accumulated loan total of $5000. Graduate level students may be extended annual loans of $2500 to a maximum accumulated loan total of $10,000. The above regulations and provisions of the National Direct Student Loan Program are subject to change by federal legislative action.

Health Professions Student Loans

The Health Professions Student Loan is available to students who are enrolled or admitted in a course of study leading to a degree of Doctor of Veterinary Medicine and who show need of assistance in order to pursue their course of study. The program provides a long-term, low-interest loan with repayment beginning twelve months following termination of full-time study at an accredited health professions school. Repayment may also be deferred for a period up to three years while the borrower is serving in the Armed Forces or Peace Corps or for the years required for a full-time course of study leading to advanced professional training. Interest is 3 percent per year on the unpaid balance; the maximum repayment period is ten years. However, a minimum monthly payment may be required. The maximum loan available to an individual borrower in an academic year is $2500. The above regulations and provisions of the Health Professions Loan Program are subject to change by federal legislative action.

Student Employment

Two employment programs are administered in the Financial Aid Office to help students find part-time employment.

The College Work-Study Program is a federal work program which provides jobs for students who have financial need and who must earn a part of their educational expenses. Eligible students are placed in jobs on or off campus where they work approximately fifteen (15) hours per week.

The Student Employment Service operates as a central referral agency. It coordinates listings of part-time employment from both University and private employers with the requests of students seeking part-time employment. Referrals are made in accordance with the student's skills and qualifications. Part-time jobs average from 15 to 20 hours per week. If part-time employment is a financial necessity, the student with a low grade average, he/she is advised to accept a job requiring fewer hours of work per week.

Spouses of full-time students or students not enrolled full-time in the University should contact the Personnel Office, 1900 Terrace Avenue, The University of Tennessee, Knoxville, 37916, concerning employment.

Other Assistance

The Basic Educational Opportunity Grant Program's central purpose is to assist in making available the benefits of post-secondary education to qualified students who display a financial need for this assistance. The program is administered by the U.S. Office of Education, and applications are available in high schools and post-secondary educational institutions. The student submits the application to the office of Education and is, in return, notified of the expected family contribution. The student then forwards the notification form to the institution which he/she plans to attend. The Financial Aid Office then reviews the expected family contribution, computing and dispersing the B.E.O.G. funds to the student.

When the program is fully funded, maximum grants are $1400 less the parent contribution and not more than one-half of the cost of education. For information write to U.S. Office of Education, Washington, D.C.

All undergraduate applicants for financial assistance must apply for the Basic Educational Opportunity Grant if they meet the eligibility requirements. The total amount of aid offered by the Financial Aid Office is based on the receipt of this program. For Guaranteed Student Loans to help meet educational expenses may be available through the federal government or a state guaranteeing agency. Contact your local bank or credit union to determine their participation in this program. To receive the loan, you must be admitted to or in regular full-time attendance in good standing at the University. Interest on such loans is paid by the federal government while the student is in school if the student is eligible for interest benefits. During the repayment period which begins no less than nine months after graduation or withdrawal from the University, the student pays interest. The maximum amount of a loan to an undergraduate in a twelve-month period cannot exceed $2500.

Total loans outstanding may not exceed $7,500 for the undergraduate or $10,000 for the graduate student.

Complete information is available at most banks and credit unions. In the state of Tennessee, write the Tennessee Student Assistance Corporation, 707 Main Street, Nashville, Tennessee 37206.

Tennessee Student Assistance Grant

The Tennessee Student Assistance Grant is designed to further the opportunity for higher education to residents of the state. Tuition grants range from a minimum of one hundred dollars ($100) to a maximum of one thousand dollars ($1,000), dependent upon the distance must apply and the amount of tuition and mandatory fees assessed by the institution. The highest grant at the University of Tennessee, Knoxville is approximately four hundred fifty dollars ($450).

All undergraduate applicants for financial assistance should apply for the Tennessee Student Assistance Grant if they meet the eligibility requirements.
More information may be obtained on this program by writing to the Tennessee Student Assistance Corporation, 707 Main Street, Nashville, Tennessee 37206.

Application Procedures

Because a student’s family resources can drain during summer and increase significantly during an academic year, the University requires each student to apply annually for renewal of financial aid.

(1) Complete and submit the Application for Student Financial Aid on or before the following priority deadline dates: March 1 — Entering Freshmen, April 1 — Currently Enrolled and Transfer Students.

(2) Complete and File a Parents’ Confidential Statement and/or Financial Aid Form to the College Scholarship Service approximately three weeks prior to the priority deadlines. If you are applying only for an academic merit scholarship, a financial statement is not required.

(3) Complete and submit an application for the Basic Educational Opportunity Grant if you are requesting assistance based on financial need.

Financial aid programs, policies, and procedures are subject to annual change. Therefore, those interested in applying for financial aid should refer to the current informational brochure, “Financial Assistance for Students,” distributed by the Financial Aid Office.

Applications for financial aid can be obtained by writing to The Financial Aid Office, 301 Student Services Building, The University of Tennessee, Knoxville, Tennessee 37916. Graduating Tennessee high school students are encouraged to obtain application materials and information from their high school guidance counselor.

The University of Tennessee wishes to express gratitude to the contributors and donors of the following scholarships:

AFL-CIO Estes Kefauver Memorial Scholarship Fund
Agrico Scholarship
Agricultural Faculty-Alumni Scholarships
James T. Allor Scholarships
Air Force ROTC
Alcoa Foundation Scholarships
All-Sing Scholarships
Clady and Guffey Alley Scholarships
Alpha Delta Kappa Scholarships
Alpha Lambda Delta Scholarships
Joe Melton Memorial Scholarship
Altrusa Club of Knoxville Scholarship
American Home Economics Association Scholarship, College Chapter
American Society for Metals
Oak Ridge Section, Scholarship
American Society of Tool and Manufacturing Engineers-Knoxville-Oak Ridge Chapter Scholarship
American Welding Society Scholarship
Ida A. Anderson Scholarship
Anderson County Agricultural Scholarship
Animal Husbandry Award
Armour and Company Scholarship
Army ROTC
Max B. and Lalla B. Armstrong J. Clayton Arnold Teacher Training Scholarship
General Henry M. Arnold Educational Fund
Art Department Art Auction Scholarships
Aarco Foundation Scholarships
Captain Samuel E. Asher Memorial Scholarship
ASQC Electronics Division
Clyde B. Austin Memorial Scholarship
Charles H. Bacon Scholarship
Bacon-Beard Scholarship in Philosophy Fund
Hop Baily, Sr. Scholarship
John Bailer College of Business Scholarship
Howard H. Baker Memorial Fund
Bank of Cowan Agricultural Scholarship
Bank of Maryville Scholarship
The Barnhill Scholarship
Paul Barnett Memorial Scholarship Fund
Grace and Brodie Baynes Scholarship in Accounting
G. Nier and Howard Ashley Scholarship in Transportation
Alvin Beaman Scholarship Fund
Beard Scholarship in Philosophy Fund
Bedford County Farmer Cooperative Agricultural Scholarship
Roy F. and Addie Bell Scholarships
Benco Plantation Scholarship
The Carl M. Bennett Scholarship
Stelmon Bennett Agricultural Scholarship Fund
Berkline Corporation Scholarships
Beta Gamma Sigma Awards
Beta Sigma Phi Scholarship
Karl and Maderia Bickel Scholarships
Mr. and Mrs. E.J. Bilbro Scholarship
Voula Bitzas Scholarship
Bilbrey County Agricultural Scholarship Fund
Block and Bridle Agriculture Scholarship
Amanda Minnis Bonham Scholarship
Frederick T. Bonham Scholarship Fund
Frederick T. Bonham Journalism Award
Borden Home Economics Scholarship Award
Dr. Wade H. Boswell Scholarship
Donald H. Breyman Scholarship
Harry E. Bradley Scholarships
Brainerd Kiwanis Club Agriculture Scholarship
Harry W. Braden Scholarship Fund
Margaret Browder Scholarship
Fred and Ruth Brown Scholarship
Grover C. Brown Scholarship
Neil Mann Brown Scholarship
William Lester Brown Memorial Scholarship
William P. Bryant Scholarship Fund
W.W. Burton Scholarship
Jim Burke Eates Kefauver Memorial Scholarship Fund
Burlington Industries Foundation Scholarships
C & M Livestock Market, Inc. Agriculture Scholarship
Campbell County Agricultural Scholarship Fund
Cannon County Agricultural Scholarship
Carter County Agricultural Scholarship
Central State Bank of Lexington Scholarship
Frank Chance Agriculture Scholarship
Chattanooga Hotel-Motel Scholarship
The Chemstrand Corporation Scholarship
George S. Child, Jr. Memorial Law Scholarship
The Church Street Methodist Church Scholarships
Bertha Walburn Clark Orchestral Instruments Award
W.C. Clay Agricultural Scholarship
Frank G. Clement Foundation Mental Health Scholarship
Linton T. Cochran Scholarship
Cooke County Farm Bureau Agricultural Scholarship
Cooke Family Coop Agriculture Scholarship
Coffee County Alumni Scholarship Fund
Guy Coheleach Conservation Fund
The College of Education Alumni Scholarships
The College of Home Economics General Scholarships
Ed Collins Memorial Scholarship
Colonial Banking Company Scholarship
Columbia Gas of Ohio Education Scholarship
Continental Oil Company Scholarship
Continuing Education of Women Scholarship
J.A. Cooley Memorial Scholarship
Coryell Manufacturing Company Scholarship
Dr. and Mrs. Denna Coughlin Scholarship
Ray Cowles Memorial Scholarship Fund
Cari T. Cox Memorial Scholarship
Taylor H. Cox Memorial Scholarship
Nellie Crooks Scholarship Award
Cumberland Farmers Cooperative Agricultural Scholarship
Bernard L. Dahlberg Memorial Scholarship
Jack Daniel Distillery Food and Lodging Scholarship
Dairymen’s Insurance Scholarship
Davidson County Farm Bureau Agricultural Scholarship
Captain Herbert L. Davis Memorial Law Scholarship
Ella J. Day Scholarship
Delta Airlines Scholarships
Delta Delta Delta Scholarship
C.H. III and K.W. Dixon Scholarship
Dr. K.G. Dixon Scholarship
Grace Gorden Doggett Scholarships
Donelson Home Economics Club Scholarship Fund
Dora Cooper Scholarship
Dow Chemical Company Scholarship in Chemical and Metallurgical Engineering
Mildred E. Doyle Scholarship
Draper-McMurtry Agriculture Scholarship
Professor Duncan Angus Scholarship
Dean R. Dunford Band Scholarship Fund
Dupont Fellowship in Engineering
East Tennessee Title Insurance Agency Scholarship
Electrical Engineer Discretionary Scholarship
Elizabeth Evans Scholarship
Stillman Evans Estes Kefauver Memorial Scholarship Fund
Buck Ewing Scholarship Fund
John F. Estes Foundation Scholarship
Emily Mahan Faust Graduate Fellowship in Theatre
Fayette County Farm Bureau Agricultural Scholarship
Dr. Mark P. Fecher Agricultural Scholarship
Mary J. Feerick Memorial Law Scholarship
First National Bank of Franklin County Agricultural Scholarship
First National Bank of Livingston County Agricultural Scholarship
N. E. Fitzgerald Memorial Scholarship
Flenniken, Fowler and McClamroch Memorial Scholarship
Grace C. Follin Memorial Scholarship
Henry H. Ford Agricultural Scholarship Fund
Robert L. Forrester Memorial Scholarship Fund
Franklin County Farm Bureau Scholarship Fund
Franklin Farmers Cooperative Agriculture Scholarship
Margaret Franklin Memorial Fund
Jillia Davis Farmer Memorial Scholarship
Katherine and Helen Freed Memorial Scholarship
Eugene C. Fretz Memorial Scholarship
Future Homemakers of America Freshman Scholarship
Future Homemakers of America Scholarship
Laurence Gardiner Agricultural Scholarship
General Electric Bank Scholarship
General Foods Fund
General Motors Corporation Scholarship
Mr. and Mrs. R.E. Geoge Scholarships
 Gibson County Farm Bureau Agriculture Scholarship
Gibson County Farm Bureau Home Economics Scholarship
Gibson County Farmers Cooperative Scholarship
George W. Givens Memorial Scholarship Fund
R.J. “Dick” Goddard Scholarship
Granger County Agricultural Scholarship
Senator Andrew Jackson Graves Memorial Law Scholarship Fund
May Pomeroy Graves Scholarship
Irene and Gordon L. Green Memorial Scholarship
Orin B. Graff Scholarship Fund
John W. Green Law Scholarship Fund
Greene County Farm Bureau Agricultural Scholarship
Greene Farmers Cooperative Scholarship
Irene H. Greene and Condon L. Greene Memorial Scholarship
B.L. and Margaret Greer Endowment
Harnett Greve Scholarship
Grundy County Agricultural Scholarship
Grundy Farm Bureau Scholarship
J.A. Hadley Scholarship
Hamblen County Agriculture Extension
Hamblen County Farmers Cooperative Agricultural Scholarship
Hamblen County Farm Bureau Scholarship
Edward H. Hamblen Scholarship
Hancock County Agricultural Scholarship
The Hand Foundation, Inc., Scholarship
Wilson County Agricultural Extension Scholarship
H.W. Wilson Scholarship
Winchester Rotary Club Agricultural Scholarship
J.H. Winstead, Jr. Memorial Scholarship Fund
Chancellor Glen W. Woodlee Scholarship Fund
Dick Wright Scholarship
Gerti Wundulich Scholarship in German
Edwin F. Zwicker Scholarship

The University of Tennessee wishes to express gratitude to the contributors and donors of the following loan funds:

American Association of University Women Loan Fund
American Institute of Architecture Loan Fund
Samuel W. Atkins Loan Fund
W. Trox Bankston Loan Fund
Baxby-Allfrusa Loan Fund
John L. Boyd Student Loan Fund
John H. Cantrell Scholarship Fund
W.W. Carson Loan Fund
Fred Collins Memorial Loan Fund
Nancy M. Dismuke Loan Fund
E.P. Frost Memorial Foundation (The Scarrabean Senior Society Loan Fund)
Eugene Gambill Loan Fund
Helen B. Gibson Loan Fund
Gordon A. Hawkins Memorial Loan Fund
Fleta Grills Hodge Memorial Loan Fund
J.E. Hogan Loan Fund
Ruth Hope Memorial Loan Fund
R.N. Kesterson Loan Fund
Knoxville Academy of Medicine Loan Fund
J.E. Lutz Memorial Loan Fund
Clarence H. Moody Loan Fund
Isie Moore Memorial Loan Fund
Phi Kappa Phi Loan Fund
Phi Mu Alumnae Association Loan Fund
Mary Plummer Memorial Loan Fund
Maude Powell Student's Aid Fund
James H. Rader Memorial Loan Fund
Charles C. Rithoff Loan Fund
William Rule Loan Fund
Senior Memorial Loan Fund, 1922
Senior Memorial Loan Fund, 1925
Sarah Hawkins Sevier Memorial Fund
James A. Shull Loan Fund
J. Allen Smith Students' Aid Fund
Southern Railway Loan Fund (William Wilson Finley Foundation)
B.R. Strong Trust Fund
Students Loan Fund (Special)

Students Loan Fund of the Tennessee Banker's Association (Fred Collins Memorial Foundation)
Mary Boyce Temple Loan Fund
Williamson County Farm Bureau Scholarship
Nathaniel S. Woodard Memorial Loan Fund

Honors and Awards
The honors and awards available to students at The University of Tennessee, Knoxville are listed with donors below.
The University reserves the right not to award any of the honors or awards listed herein.

Dean's List
Public announcement of students passing a quarter's work "With Highest Honors" (grades from 3.75 through 4.0), "With High Honors" (3.40 through 3.74), "With Honors" (3.0 through 3.39). To be eligible, a student must complete at least 12 hours, not counting work taken on satisfactory/no credit basis.

College of Agriculture
The American Society of Agricultural Engineers each year selects an outstanding agricultural engineering student for the ASAE Student Honor Award. Based on scholarship, activities, and community contributions, the award consists of a key and certificate.
The American Society of Agronomy has made available a Certificate of Merit for an outstanding senior in the Department of Plant and Soil Science who has a superior academic record and displays evidence of high potential in this field.
The American Society of Animal Science awards scholarship medals and embossed certificates to sophomore, junior, and senior students in the Department of Animal Science who are of good moral character and rank scholastically in the top 10 percent of their class.
The Block and Bridle Club recognizes students in Animal Science who are successful in their academic program, have made unusual contributions to the Club program, and show evidence of leadership in their chosen field.
The Danforth Foundation Inc. provides a fellowship to support two weeks of leadership training at Camp Minwaska on the shores of Lake Michigan for an outstanding agricultural student following the freshman year.
The Forestry Faculty Scholarship Award, given annually at the end of the junior year of the recipient who is selected by the forestry faculty on the basis of outstanding scholarship and contribution to the Forestry program.

Kentucky-Tennessee Section, Society of American Foresters Scholarship, awarded every third year to the outstanding forestry student with the highest scholastic average. The award is in cash and a framed certificate.

M. Jacob Animal Husbandry Award, given by East Tennessee Packing Company.

J.B. Madden Memorial Foundation Fund, established by J.B. Madden family. Income from $1,000 fund, for prizes in livestock judging competition.

Student-Faculty Council Awards. Each year the College of Agriculture Student-Faculty Council presents plaques to four seniors, three juniors, and two sophomore students in the College judged to be outstanding. Selection is based on scholarship, character, and demonstrated leadership ability. Plaques are also presented to the two students in each class with the highest scholastic average.

Poultry Improvement Board Awards. $100 available for awards to students competing in poultry and poultry products judging.

School of Architecture
Malcolm Rice Achievement Award. $100 awarded annually to the third-year student showing most improvement with design studio.

College of Business Administration
Beta Gamma Sigma Awards. Plaques given to the freshman and sophomore students with highest grade point averages by this national honor society.

Delta Sigma Pi Scholarship Key, given by international fraternity to male senior with highest four-year scholastic average.

John Fred Holly, Jr. A memorial scholarship endowed by the parents.

John M. and Suzanne W. Larsen Phi Kappa Phi Scholarship Award. Awarded to the College of Business Administration junior initiate with the highest grade point average.

Knoxville Sales Executive Club Award. Plaque, plus dinner in student's honor, to outstanding senior marketing major.

Lutz Award, given by J.E. Lutz & Co., Inc., Knoxville. Cash award to student with minimum of 120 quarter hours having highest scholastic record after completion of first eight quarters of required courses in chosen field.

Lutz Insurance Award, given by J.E. Lutz & Co., Inc. Cash award to finance major submitting most scholarly, complete, and satisfactory written project in insurance field.

Fulton Beverly Moore, Ill., Memorial Real Estate Scholarship. A memorial scholarship fund endowed by the parents.

Pi Omega Pi Scholarship Key. Key to senior business education major with highest 11-quarter scholastic average.

John Sample Agency for Connecticut Mutual Life Insurance Company. Cash award to a student majoring in insurance.

Smoky Mountain Chapter of the Bank Administration Institute. Cash award to a junior or senior with residence in Tennessee and majoring in banking.

Wall Street Journal Award. Student Award Medal, year's subscription to The Wall Street Journal to outstanding student in finance classes using this newspaper during the year.

William Way, Jr., Memorial Award. Gold medal or key to senior transportation major with highest academic average.

Zeta Lambda Chapter of Alpha Kappa Psi, professional business fraternity, awards annually the Alpha Kappa Psi Scholarship Award to the male student pursuing a degree in business who has attained the highest scholastic average for three years of collegiate work in this University.

College of Communications
Advertising Club of St. Louis College Award Citation, given to outstanding man and woman graduating in Department of Advertising.

Alcoa Foundation Scholarship. $600 to an outstanding undergraduate planning a career in public relations.

Alcoa Foundation Minority Scholarship. $600 to an outstanding undergraduate minority student in the College.

Karl and Madira Bickel Scholarships. Freshman Scholarships up to $1,000. Upperclass Scholarships up to $1,000. Doctoral Scholarships up to $4,000. Open to all students showing academic performance (3.00 or B or better), professional promise and need.

Edward J. Meeman International Communications Fellowships. $1,500 each, to two outstanding graduate students from other countries.

Emrie Pyle Memorial Award, given by Scripps-Howard Newspapers, to outstanding basic journalism library awarded to the outstanding senior in recognition of scholarship and journalistic achievement.

Greater Knoxville Ad Club Award, given to outstanding junior in Department of Advertising.

Hoyt B. Woollen Award, given by family. Plaque and basic broadcasting library awarded to the outstanding senior in recognition of scholarship and broadcasting achievement.

Journalism Faculty Scholarship. Up to $500 to an outstanding junior in the School of Journalism.

Myron G. Chambers Scholarships, given by Scripps-Howard Newspapers. $1,000 total to one or more outstanding undergraduates in the Department of Advertising.

Pen Women of America Scholarship. $100 given by the Knoxville Branch to an outstanding junior journalism student who has shown promise as a writer.

Frank B. Powers Scholarship, given by Scripps-Howard Newspapers. $1,000 total to one or more outstanding undergraduates in the Department of Advertising.

Sammie Lynn Pueli Award, given to outstanding student in the public relations sequence in the College of Journalism.

Society of Professional Journalists, Sigma Delta Chi Outstanding Graduate Citation. Certificate given by professional journalism society to outstanding senior in the College of Journalism.

Tennessee Association of Broadcasters. $300 to outstanding freshman and outstanding junior or senior planning a career in broadcasting.

Willis C. Tucker Scholarship Award, given by Society of Professional Journalists, Sigma Delta Chi. Silver bowl of key to graduating senior with highest academic average.

College of Education
Kappa Delta Pi, honor society for professionals and students in education, awards the Kappa Delta Pi Scholarship Award. Membership to senior woman selected on basis of scholarship and leadership qualities.

Pi Lambda Theta Fraternity Scholarship Key, given to junior gaining most outstanding qualities for professional leadership in education, maintaining high scholastic average through junior year.

College of Engineering
American Chemical Society, East Tennessee Section, American Chemical Society offers an award each year to an outstanding senior in chemical engineering.

American Institute of Aeronautics and Astronautics. Award of one-year membership made each year to a junior member whose performance is outstanding and in branch activities has been outstanding.

American Institute of Chemical Engineers Professional Achievement Award to chemical engineering senior who has contributed most to student chapter. Name engraved on permanent plaque, and certificate.

American Institute of Chemical Engineers Scholastic Award to chemical engineering junior who attained highest scholastic average in first two years. Certificate and handbook.

American Institute of Chemists Medal. Recognition of an outstanding student in chemical or metallurgical engineering. Medal and certificate.

American Society of Mechanical Engineers. Award and certificate presented each year to a member of the student section for outstanding work with the professional society.

Armour T. Granger Memorial Scholarship. A cash award given jointly by the Department of Chemical Engineering and the American Society of Civil Engineers, Tennessee Valley Section, to a senior. Based upon scholarship, need, and activity in the ASCE student chapter.

The Arthur Brownlow Wood Memorial Scholarship Fund. A cash award made annually to one or more outstanding students in engineering.

Association of Textile Industry Engineers Award. A $500 one-year award based on need, given by the Department of Industrial Engineering to a senior.

Billy J. and Sylvia F. Moore Scholarship Fund. A cash award given to one or more upperclass students majoring in electrical engineering, preferably seniors who have participated in the student chapter's co-op program. Based on both academic achievement and need.

East Tennessee Chapter of American Institute of Industrial Engineers Award. Award of handbook and plaque to the outstanding senior industrial engineering major.

East Tennessee Section of the Institute of Electrical and Electronics Engineers. Cash award made annually to junior in electrical engineering with an outstanding scholastic record.

Electrical Engineering Leadership Award. One or more cash awards may be made annually to juniors or seniors in electrical engineering who have exhibited outstanding leadership ability and have maintained a B average or above.

H.L. Weisberg Memorial Award. An annual award given by the department to an outstanding senior majoring in engineering science. Letter of recognition, plaque.

J. Mack Tucker Outstanding Senior Award. Recognition by the Student Section of the American Society of Mechanical Engineers of the outstanding senior in the Department of Mechanical and Aerospace Engineering. Award is based on leadership, scholarship, and service. Name on plaque.

Joel F. Bailey Award. Recognition by Tennessee Tau Eta Chapter of Pi Tau Sigma of the student in mechanical and aerospace engineering having the highest grade point average in each calendar year. Name on plaque.

John Milton Snoddy Scholarship Endowment Fund. Cash award in recognition of scholastic achievement and evidence of high potential as a future engineer to outstanding senior upperclass engineering students as selected by the civil engineering faculty.

Patterson and DeWar Scholarship. Cash award to a senior in electrical engineering majoring in electrical power distribution.
Tau Beta Pi Outstanding Senior Award, given by the Tennessee Alpha Chapter. Recognition of a senior in engineering who displays outstanding service, leadership and scholarship. Name on plaque.

University of Tennessee Book and Supply Store Award. An electronic calculator awarded quarterly. Chosen by departmental committees in rotation. Given to an upperclassman on the basis of need and demonstrated academic performance.

College of Home Economics
Akima Club Interior Design Scholarship. Awarded to student enrolled in interior design. In-state tuition.
Central State Bank of Lexington. Awarded to student from Henderson County. $300.
Jack Daniel Distillery Scholarship. Awarded to student enrolled in the food and lodging administration program. $500.
Donelson Home Economists. $500.
Irene Hill Greene and Condon L. Greene Memorial Scholarship. Awarded to student from Anderson County. $300.
Gibson County Farm Bureau. $400.
Jessie W. Harris Scholarship. Awarded to sophomore, junior and senior with highest scholastic record. Three. $300 each.
Hawkins County Farm Bureau. Awarded to a freshman from Hawkins County. $300.
Knoxville Hotel-Motel Association Scholarship. Awarded to student enrolled in the food and lodging administration program. $500.
Lewisohn Scholarships, endowed by Frederick Lewisohn. Ten. Variable.
Memphis Hotel-Motel Association Scholarship. Awarded to student enrolled in the food and lodging administration program. $500.
Nashville Area Home Economists in Homemaking Scholarship. Awarded to a Nashville resident. $500.
Nashville Hotel-Motel Association Scholarship. Awarded to student enrolled in the food and lodging administration program. $500.
Nellie Crooks Award. Award of reference books and journals to an outstanding junior.
National Institute of the Foodservice Industry. Awarded to student enrolled in the food and lodging administration program. $600.
Omicron Nu Sophomore Scholarship Award. $100. Awarded by the home economics honor fraternity.
Joe Powell Memorial Scholarship - District II 4-H All Stars. Awarded to 4-H All Star member from District II. $300.
Roane County Council of Home Demonstration Clubs. Awarded to freshman from Roane County. $250.
Schenley Industries Scholarship. Awarded to student enrolled in the food and lodging administration program. $300.
Scrubgs Restaurant Equipment, Inc., Scholarship. Awarded to student enrolled in the food and lodging administration program. Two. $250 each.
Stoutler Foods Corp. Scholarship. $300.
Tennessee Chapter of Future Homemakers of America. One. $300.
Tennessee Dietetic Association. Awarded to upperclassmen enrolled in dietetics program.
Tennessee Rehabilitation Corporation Scholarship. Ten. $425 each.
Tennessee Restaurant Association Scholarship. Awarded to student enrolled in food and lodging administration program. $500.
Association of Extension Home Economists. $250.
University of Tennessee General Scholarships. Variable.
Washington County Farm Bureau. Awarded to student from Washington County. $300.
Western Sizzlin Steak House Scholarship. Awarded to student enrolled in the food and lodging administration program. $500.
College of Law
Bobbs-Merrill Company Prize. A copy of Tennessee Code Annotated to student who has attained the highest average during three years of law study.
Callaghan and Company Prize. A copy of Brown on Personal Property to student who has attained the highest average during the junior year in the College of Law.
Herbert L. Davis Memorial Trust Fund. An award of $100 to the law student who has the highest scholastic average for the first two years of work in the College of Law.
Syllus E. Hodges Memorial Scholarship Fund. An award of $125 to third-year student who has demonstrated outstanding character, scholarship, and interest in the Legal Clinic program.
Knoxville Auxiliary to the Tennessee Bar Association. An award of $100 to law student who has the highest scholastic average in the first year of work in the College of Law.
Lawyers Cooperative Publishing Company and the Bancroft-Whitney Company. The joint publishers of American Jurisprudence offer separately bound topics from the encyclopedia to students receiving the highest grades in each subject.
United American Bank of Knoxville. In memory of C.M. Preston, three prizes are offered annually to those members of the senior class who draft the best will based upon a hypothetical state of facts. First prize amounts to $125, second prize $75, and third $50.
United States Law Week Award. The editors have established an award consisting of a year's subscription to the Law Week for the member of the senior class who makes the most scholastic progress during the senior year.
West Publishing Company Award. A title selected from its Hornbook Series is offered annually to that member of each of the three classes who achieves the highest scholastic average in the class.
West Publishing Company Award. A title selected from Corpus Juris Secundum is offered annually to that member of each of the three classes who has made the most significant contribution toward overall legal scholarship.
College of Liberal Arts
John M. Allen Mathematics Prize. Medal, to outstanding sophomore mathematics student. Prize is determined by competitive examination covering material found in the following courses: Mathematics 1540-50-60, Mathematics 1840-50-60, and Mathematics 1846-58-68.
Bain-Swiggert Poetry Prize, for excellence in writing conventional forms of English poetry. $65.
Philo Sherman Bennett Prize, established by the late Hon. William J. Bryan. Cash award to student submitting best essay discussing principles of free government.
Biology Award, to the outstanding biology senior.
Eleanor R. Burke Award, for excellence in expository writing. Founded in honor of the daughter of a former head of the English department, $55.
Captain Robert A. Burke Award, for excellence in English prose fiction. Founded in honor of the son of a former head of the English department, $55.
Chi Omega Prize, given by Pi chapter of sorority. $25, to the senior girl majoring in the social sciences, with the greatest proficiency in the subject.
Senior Greek Prize, established by friends of the classics. Cash award, to member of senior Greek class showing greatest proficiency in the course.
Maud Calloway Hays Scholarship. Variable scholarship of approximately $20 to senior history major with special interest in U.S. History.
History Department Scholarship. $360 to history major with financial need.
John C. Hodges Scholarships. Each year one or more scholarships, supported by the Better English Fund, established by John C. Hodges, are awarded to outstanding English majors. These awards are made at the end of the junior year and carry remission of in-state fees for the senior year of study. Applications are not accepted; selection is made by a departmental committee on the basis of superior academic performance in English.
Italian Studies Award, established by Italian division of Department of Romance Languages. Cash award to outstanding student in upper division courses in Italian.
Knickerbocker Poetry Prize, for excellence in writing. English poetry. Founded by the late Stephen L. Moore, in honor of a former head of the English department, $50.
Senior Latin Foundation Prize, established by friends of the classics. Cash award, to member of senior Latin class showing greatest proficiency in the course.
Charles L. McClung Prizes. First prize of $100, second prize of $50, to junior or senior for excellence in composition and declamation. Subjects are set by English department in first quarter of academic year. Manuscripts must be submitted by Feb. 15. Six finalists compete in public declamation contest on first Wednesday evening in March.
Mrs. J. Harvey Mathes Tennessee D.A.R. American History Scholarship, Intended on Celie, to woman student. Winners selected by the Department of History.
A.D. Melaven-Rhenium Scholarships, for students in the Bachelor of Science in Chemistry curriculum. Established from funds obtained by the sale of rhenium metal and rhenium compounds prepared by procedures devised by Professor A.D. Melaven. Awards of $100 given quarterly to outstanding students.
Judson H. Robertson Award in Analytical Chemistry. Endowment established by family and friends of the late Professor Robertson. $100 to student with highest scholastic average in sophomore analytical chemistry courses.
Bermadotte Schmitt History Scholarship. Two scholarships of $500 each for academic excellence, and one of $500 based on financial need. History majors only.
Ruth Stephens Award in International Relations and International Law, established by the late Mr. and Mrs. Oscar Handly, Knoxville. Dividends from investment of $1,500, to student showing greatest knowledge of international relations or international law.
Ruth Stephens History Scholarship. $400 to history major for academic excellence.
Rush Strong Medal, established by the late Benjamin Rush Strong, Knoxville. Medal to student submitting best essay on "The Value of Truth."
A number of honorary and professional fraternities have chapters on the University's Knoxville campus. Membership in these organizations is generally based on the initiate's good character, proficiency in his chosen field, leadership characteristics, and a high scholastic record.

Those honor fraternities, both national and international, are: Chapters at The University of Tennessee are:

Alpha Chi Sigma, for chemical engineering and chemistry students. Student must have a grade point average of 2.5 in chemistry and/or chemical engineering combined and 2.5 in all academic work and must have been enrolled in this school for at least one quarter and be elected to membership by others in the local chapter.

Delta Epislon Delta, for students preparing for study of medicine. Students with minimum 3.0 average must be eligible at end of their first three quarters in the University, or at end of four quarters with a minimum 2.8 average overall. They may be elected to as at least two quarters if an overall 2.8 average has been maintained.

Hci Omega. Any undergraduate who is a former Scout is eligible for membership. A pledge must reside in the center of academic work with an average grade of 2.0 before eligible for initiation.

Pi Mu, for industrial engineering students. Prospective members are chosen from the upper one-third of the seniors and upper one-fifth of the junior class. A minimum 2.5 average is required.

Zeta, agricultural fraternity for juniors and seniors. Prospective members must be among the upper two-thirteens of their respective class and show leadership ability.

Beta Alpha Psi, for accounting students. Any undergraduate or graduate accounting major registered in advanced accounting, with a minimum B average in accounting subjects and a minimum B-minus average in all subjects, is eligible for active membership.

Beta Gamma Sigma, for students in the field of business administration. Membership is limited to those students in the upper one-tenth of their graduating class or in the upper three-quarters of their graduating class. Membership in the upper one-tenth of the graduating class may be elected in the last quarter of the year.

Delta Nu Alpha, for transportation students. Prospective members must have completed the basic transportation courses and have a minimum 2.3 average.

Delta Epsilon, for business education graduate students. Prospective members must have a minimum 3.4 average for nine hours of graduate work in business education. Candidates are required to show evidence of their scholarship before initiation by presenting a talk, research abstract, or written paper to the group.

Delta Sigma Pi, professional business fraternity for students enrolled in the College of Business Administration. A minimum of 45 quarter hours University credit with a scholastic average of at least 2.5 for initiation.

Delta Sigma Rho-Tau Kappa Alpha honor societies for junior and senior students who have participated at a high level of excellence in intercollegiate forensics or original speaking activities and who rank in the upper 35 percent of their college class.

Delta Theta Phi, for law students.

Eta Kappa Nu, for electrical engineering students. Members may be selected from juniors ranking in the upper one-fourth, or seniors ranking in the upper one-third of their respective electrical engineering class.

Eta Sigma Phi, honor society for students in classical languages. Membership is open to students who have attained at least a 3.0 average in Latin or Greek courses.

Gamma Beta Phi, scholastic honor, educational-service organization open to students in all fields of study. Prospective members require a grade point average of 3.5 and must have completed 15 hours of study, rank in the upper 20 percent of their respective college and have a minimum of a 3.2 overall average.

Gamma Sigma Delta, agricultural honorary society for graduating seniors, graduate students, faculty, and alumni. Membership must be in the upper one-fourth of the graduating class in the college of agriculture and must have a 3.0 average or better. Graduate students must have attained a 3.5 average or better on at least 24 hours toward the advanced degree. They must have shown promise or superior ability in carrying on advanced study and/or research directly concerned with agriculture and of making worthy contributions in their respective fields.

Gamma Theta Upsilon, honor society for students majoring in the field of music.

Iota Lambda Sigma, for industrial education students. Students must be enrolled in nine hours of industrial education courses with at least a B average.

Mu Lambda, for senior students. Members must have attained a minimum 3.0 average for nine quarters of University study.

Omicron Delta Epsilon, honor society in economics for students and faculty. Student members must have a minimum 3.0 overall average.

Omicron Delta Kappa, for junior and senior students.

Omicron Nu, for home economics students. Members are elected from the upper one-fourth of the senior class and upper one-fifth of the junior class, not to exceed 20 percent of any given class.

Order of the Coli, for law students.

Phi Alpha Delta, for law students.

Phi Beta Lambda, professional fraternity for students enrolled in the College of Business Administration. Prospective members must be enrolled in at least three hours in the College with a minimum of a 2.2 overall average.

Phi Beta Kappa, the oldest national academic honorary society, for liberal arts juniors and seniors who are ranked in the upper one-quarter of their graduating class. For seniors, the upper one-third of their graduating class may be elected in the last quarter of the year.

Phi Eta Kappa, the oldest national academic honorary society, for liberal arts juniors and seniors who are ranked in the upper one-quarter of their graduating class. For seniors, the upper one-third of their graduating class may be elected in the last quarter of the year.

Phi Delta Kappa, professional fraternity for women interested in a business career. Any woman student enrolled in the College of Business Administration, or specialization in business and/or economics, being at least a third-quarter freshman and having at least the all-student average, is eligible for membership.

Phi Delta Kappa, honorary professional fraternity in education who have attended colleges and universities of graduate rank maintaining schools, colleges or departments of education; pursuing excellence in service, teaching, and research.

Pho Delta Phi, for law students.

Phi Eta Sigma, for freshmen who have a minimum grade point average of 3.5 the first quarter or first three quarters while carrying a full academic load. All candidates must rank in upper 20 percent of their respective college class.

Phi Eta Sigma, broadest of the national honor societies, recognizing all fields of learning. Prospective members must be seniors ranking among the upper 10 percent of their respective college class, with a minimum 3.0 average. Meeting these requirements does not necessarily assure election.

Phi Mu Alpha, (Sinfonia), professional music fraternity for students interested in music. Requirements: 2.5 overall average. The main purpose of the organization is to further American music in the campus and community.

Pi Delta Phi, for French students. Prospective members must have a minimum B-minus average in all French courses taken.

Pi Kappa Lambda, for students in music and music education.

Pi Lambda Theta, A national honor and professional association in education, open to juniors and seniors with a minimum 3.2 GPA and graduate students with a minimum 3.5 GPA. Membership by invitation.

Pi Sigma Alpha, for political science students and faculty. Student members are elected solely on the basis of scholarship.

Pi Tau Sigma, for mechanical engineering students. Prospective junior members must rank in the upper one-fourth and seniors in the upper one-third of their respective engineering class.

Scabbard and Blade, military science honor society for upperclassmen.

Scareabean Senior Society, local society for students and faculty. Membership is by invitation.

Sigma Delta Chi, professional journalism society. Active membership shall be limited to journalism and broadcasting majors having at least a 2.3 overall grade average and having completed at least 45 hours.

Sigma Delta Pi, for Spanish students. Prospective members must have a minimum 2.78 average in all University work and a minimum 3.2 average in Spanish and must have completed a junior year in Spanish literature or be registered in the last term of such course.

Sigma Gamma Epsilon, honor society for students in earth sciences. Membership is by invitation, based on scholarship and interest.

Sigma Pi Sigma, physics honor society for upperclass and graduate students, faculty members, and qualified alumnii.

Sigma Xi, scientific research society for advanced graduate students and faculty. Prospective members must have shown noteworthy achievement as original investigators in the pure or applied science fields. Exceptionally brilliant and promising undergraduate and graduate students may be elected to associate membership.

Tau Beta Pi, national honor society for engineering students. The senior class of those in the engineering class and the top one-fifth of the senior engineering class, scholastically ranked, may be elected. Elections are held in the fall and winter quarters. The organization conducts programs and projects of benefit to students and the University.

Torchbearers epitomize the finest qualities of The University of Tennessee student. Each year the seniors who have contributed the most to the University during their college careers are selected as Torchbearers. Selection is based on scholarship, activities, character, and service.

Xi Sigma Pi, forestry honor fraternity for upperclass and graduate students, faculty members, and persons who have attained a national reputation in forestry. Students must have completed 110 quarter hours of credit including 15 hours in professional forestry courses. When practical, initiates are selected during the junior year to provide the greatest degree of benefits of active membership.
Student Affairs and Services

Office of the Vice Chancellor for Student Affairs

The Vice Chancellor for Student Affairs coordinates the various offices and departments of the University which offer assistance to students in their education and life beyond the classroom.

Office of Career Planning and Placement Service

This service is engaged in two major types of activity. First, students are offered the opportunity of receiving many forms of career advising and are provided with a wide range of career literature and audio-visual materials. Second, students and alumni are given several aids for their job search process. These include on-campus interviews, job listings, employer information and address lists, a credentials service, and training in interviewing, resume writing, and other job search skills.

Office of the Dean of Admissions and Records

All matters relating to undergraduate admission to the University and to credit for work at other schools and colleges are administered by the Dean of Admissions and Records. All credit, applications for admission, and inquiries about admissions should be addressed to the Director of Admissions, The University of Tennessee, Knoxville, Tennessee 37916.

Student Financial Aid is also administered under the direction of this office. Information on available financial aid may be obtained by writing the Director of Financial Aid, 301 Student Services Building, The University of Tennessee, Knoxville, Tennessee 37916.

In addition to undergraduate admissions, this office has general administrative responsibilities for student academic records, certification of completion of requirements for undergraduate degrees, registration procedures, and eligibility for athletic participation. This office also administers relations between students and the Social Security Administration and Veterans Administration. Handicapped students may receive special assistance in registering and arrangement of schedules through this office.

Office of the Dean of Student Conduct and Orientation

Student Orientation Office. This office is dedicated to helping the new student adjust to the university setting, concerning itself with general, personal, and scholastic difficulties of the student during the first year of enrollment on campus. The office is responsible for the summer orientation program, specifically designed for the fall-quarter new student, as well as orientation programs for freshmen and transfer students presented prior to the beginning of each quarter.

Student Conduct Office. This office is concerned with the individual rights and responsibilities of students. The personnel of this office serve as advisers to the student judicial system and, when necessary, initiate appropriate discipline proceedings.

Office of International Student Affairs

The office assists students from other countries with the many matters which are of particular concern to them during their stay in the United States. It also serves as the official University representative in all matters involving immigration authorities, international educational organizations, and foreign governments.

The office maintains the overseas student office records and provides a liaison with the teaching faculty. It coordinates such projects as a community volunteer program and activities for foreign student spouses. To help the overseas student adjust to American life, its professional staff serves as ex officio advisers on personal and academic problems. Special orientation programs are held at the beginning of each term and foreign students admitted to the University are notified in advance and are urged to arrive in time to attend them.

Non-U.S. students who are applying for Graduate School admission should write to: The Vice Chancellor for Graduate Studies and Research, The University of Tennessee. Persons seeking undergraduate admission should apply to: Director of Admissions, The University of Tennessee.

Other specific inquiries or requests for more detailed information may be directed to: Office of International Student Affairs, 201 Alumni Hall, The University of Tennessee, Knoxville, Tennessee 37916, U.S.A.

UNIVERSITY INTERNATIONAL HOUSE

The "International House" is located approximately two blocks from the heart of the campus. It is provided by the University and operated by the Office of International Student Affairs as a facility where domestic and foreign students can come together to relax and discuss matters of mutual interest.

An executive committee composed of students and faculty representing all national student groups, campus student government groups, and university administrators oversees the operation of the House and supervises a variety of weekly programs.

University Center

Playing a unique role in the University community, the Carolyn P. Brown Memorial University Center is a central gathering place for students, faculty, and staff as well as campus visitors.

A variety of activities and facilities is available in the newly enlarged Center. The lower level houses 12 automatic bowling lanes, 14 billion ten-pin facilities, outdoor recreation equipment rental, and an arts and crafts area. These facilities are among the best in the nation for student recreational pursuits.

The expansive food service on the ground level provides the finest food available. The entrance to the large, modern, two-level book store is on Stadium Drive. Such facilities as central ticket office, day student lounge, and the post office are conveniently located on the ground floor.

The first floor is the student program area. An auditorium with 575 seats, a 150-seat seminar room, a music listening room, and four public lounges supplement the large ballroom and meeting rooms for any type of campus event. Large banquet, dances, and receptions are planned and serviced in the expansive area.

Administrative offices for the building, student programs and organizations, and additional dining facilities are located on the third floor.

The meeting rooms and services of the Center are available to all approved student groups. Requests for usage are completed with the Reservations Office. This office also maintains a campus calendar for all major events.

THE UNIVERSITY BOOK AND SUPPLY STORES

The main store, at the Stadium Drive entrance of the University Center, is the official store for the University. A tobacco and sundries shop at the Stadium Drive entrance is open 12 hours daily.

Used and new textbooks are bought and sold on the lower level of the two-level store. In addition to textbooks, a 95,000 paperback book selection, technical and reference books, and numerous study aids are available on this floor. The first floor offers a complete stock of engineering, art and school supplies, records, tapes, art prints, posters, and other items for student needs.

Small branch stores are located in Hess Hall, Presidential Court, and Andy Holt Apartments. These stores are open 6½ days a week for the students' convenience.

Students benefit indirectly from their patronage of the University Book and Supply Stores since all profits are used to help support the operations and activities of the University Center and Aquatic Center. The stores are the only locations on campus where students may cash personal checks.

Office of Recreation

"Fun for Everyone" is the motto of the Office of Recreation; the primary objective is to serve students by offering activities for their leisure time. Students are encouraged to take maximum advantage of both the program and the facilities.

STUDENT AQUATIC CENTER

The Student Aquatic Center Recreation Complex affords year-round recreation for all students. Outdoor and indoor Olympic-size swimming pool with a diving well having two one-meter and two three-meter diving boards, and an olympic diving tower with five, seven and one-half, and ten
and staff, and their nonstudent wives, husbands, or friends are eligible to participate, providing the students meet the eligibility requirements of the men's and women's intramural program.

The Co-rec activities are organized as an informal program with modified rules so that men and women can participate on an equal basis.

The activities are badminton, basketball, horseshoes, paddleball, racquetball, shuffleboard, softball, table tennis, tennis, volleyball, and water polo.

INTRAMURALS FOR FACULTY AND STAFF

The Intramural Program for Faculty and Staff is designed to provide a wide range of activities for all members of the University community. Activities are organized for both teams and individual participants. Events include badminton, basketball, billiards, bowling, golf, football, handball, paddleball, racquetball, shuffleboard, softball, squash, table tennis, tennis, turkey trot, and volleyball.

SPORTS CLUBS

Sports Clubs are organized when students express an interest in a certain activity or because of anticipated needs. The Sports Club Office will assist any student wishing to organize any type of sports club.

The Sports Club Office is located in the Student Aquatic Center, Room 202. The clubs are archery, badminton, bicycling, bowling, boxing, canoe & hiking, crew, dolphin, equestrian, fencing, flying, floor hockey, gocart, gymnastics, handball, ice hockey, ice skating, judo, karate, lacrosse, racquetball, rugby, sailing, scuba, snow ski, soccer, sports car, table soccer, table tennis, trap & skeet, volleyball, water ski, and weightlifting.

FREE PLAY

All recreation areas, Alumni Memorial Gym, and the Physical Education Building, are open to students for free play when the areas are not otherwise scheduled. One or both of these facilities are open seven days a week during the school year to offer students an opportunity for physical exercise in their leisure time. Students may check out necessary equipment at each facility upon presentation of student identification cards. All recreation facilities are for the enjoyment of students, faculty, and staff of The University of Tennessee, Knoxville.

Aquatics

The aquatic facilities are designed for year-round entertainment for those who wish to participate in free swimming and diving in one of the most outstanding physical complexes in the United States. The Aquatic Center has indoor and outdoor Olympic-size pools where one can enjoy the fellowship and relaxation that comes with aquatic sports. The pool is open Monday through Friday from 12-9 p.m., Saturday from 12-6 p.m., and Sunday from 1-6 p.m. Students and members can also enjoy the sun lamps and relaxed atmosphere found at poolside.

National, regional, and state aquatic events have been held in these facilities during the past ten years. UT's aquatic programs are designed to meet the needs of all students who want to participate in aquatic skilled activities at no extra expense. The programs are informally organized at convenient hours after the school day is completed. These programs vary and provide for a more wholesome and dynamic future.

1. Skin and scuba diving is offered each quarter with NAUI certification, the most prestigious certification in the country. Equipment is furnished at no charge—safety vests, weight belts, tanks, regulators, snorkels, masks, and fins.

2. Lifesaving is offered to those students desiring American Red Cross certification. The course is taught each quarter, and books and materials are furnished.

3. The Water Safety Instructor course is offered fall, winter, and spring quarters with Red Cross certification. There is no charge for students, and instruction manuals are provided.

4. Beginning swimming is offered to students, faculty, and staff during the summer quarter. This course is for those who want to improve their swimming skills or want to learn to swim for the first time.

5. Beginning diving is offered to students, faculty, and staff during summer quarter. This course teaches coordination and skills on the springboard.

6. Water survival is offered to students each quarter. This program provides the student with the survival measures for prolonged periods in the water and is incorporated in the lifesaving program.

7. Varsity swim teams practice daily throughout the fall, winter, and spring quarters. Many outstanding meets are scheduled here, and the Vols consistently place high in the NCAA Championships.

8. A handicapped swim program is offered one quarter each year for those students who need special care in aquatic activities.

9. Lifeguard School is offered at the Aquatic Center each quarter for specialized training of all lifeguards to be hired.

10. Beginning swimming, intermediate, and advanced swimming, water safety and competitive classes are offered to faculty and staff for 40 quarters each year. Disembarkation swimming course is taught winter quarter.

11. A Swim For Your Life program is offered students, faculty and staff throughout the whole year. Records are kept, and certificates are awarded during certain phases of the program.

12. A Faculty Women's swim program is offered fall, winter and spring quarters for faculty and staff women.

13. Community competitive swimming programs are offered each quarter during the student's evening meal hour.

Other offerings include moonlight swim parties, water basketball, water polo, special Carousel showings of aquatic competitive swimming, trampoline and mini-board during supervised activities.

The Aquatic Center is available after hours for private and organizational parties, community aquatic programs, etc. for a fee. This facility has been visited by visitors, professional and nonprofessional, from all parts of the world, who have said it is among the outstanding centers of the United States.

Student Activities Office

An extensive program of extracurricular activities is available at The University of Tennessee, with over 200 student...
organizations currently functioning. Students have the opportunity to initiate and develop special interests, plan and administer all-campus programs, participate in governance organizations, and to augment the academic offerings of the classroom through participation in departmental clubs and scholastic and professional honorary organizations. The University agency charged with the development and administration of the extracurricular program is the Student Activities Office located in the Student Services Building.

WOMEN'S CENTER
The Women's Center is the coordinating unit for women's programs on the Knoxville Campus. It functions as a resource for all University departments and organizations in the areas of women's programs and activities. The Center's primary objectives are the development of programs for women, the collection of media resources about women and a comprehensive information exchange service regarding women's activities throughout the campus. The Women's Center is located in 301 University Center.

Student Health Service
Health services provided by the University are available to any student currently enrolled at the University. These services are available continuously throughout every quarter.

The Health Service has a regular staff of physicians, nurses, laboratory and x-ray technicians of Tennessee licensure. Outpatient services in the fields of general practice, internal medicine, and psychiatry are available on a full-time basis while specialty consultants in dermatology, surgery, and gynecology are available through referral by a staff physician. Care beyond that provided by the regular staff can be arranged for the student if desired. Those students requiring allergy injections may arrange to receive them at the Clinic. Charges are made for some services such as x-rays, lab tests, injections, and minor surgery.

Regular daytime hours are posted at the Health Service building, are known to the residence halls' staffs and campus safety officers and are printed in Hill Topics, the student handout. Emergency care during evenings, weekends, and some holidays is available through the Student Health Clinic at the University of Tennessee Medical Research Center and Hospital except during the longer breaks between quarters. Emergency transportation (including the use of an ambulance when necessary) to either facility may be obtained through campus Security.

Students needing total care may have this arranged by Health Service physicians, if they choose, in The University of Tennessee Medical Research Center and Hospital. Because total care is sometimes needed, it is important for the student to have hospitalization insurance. Student group hospitalization insurance is available and may be purchased during a designated period at the beginning of each quarter.

Health Service personnel will cooperate with students and family physicians to continue good health practices during the university career.

Student Counseling Services Center
The Student Counseling Services Center provides services designed to help students with education, vocational, personal and social problems. Professional counselors work with the student in a setting that allows confidential discussion of the student's concerns. The student may concentrate on a specific problem or may work on the general adjustment to academic life. Also, various small study groups are employed to meet the developmental needs of the student. These group settings provide the opportunity to share and learn from others and/or improve specific skills. Psychological tests may be used for self evaluation and information.

The Center also works with the faculty and student personnel staff to develop educational programs and projects to meet the needs of various groups in the University. The Center coordinates the course late drop program and maintains an occupational-educational information library. The Minority Affairs and Withdrawals Office, located in the Center, assists students through personal advising and educational workshops, and handles the withdrawals of all students from the University.

All students, student spouses, and to a limited extent, graduate students are eligible for counseling and services of the Center. Appointments for counseling may be made by phone or in person at the Student Counseling Services Center at 900 Volunteer Boulevard.

Student Rights and Responsibilities
By registering in the University, the student neither loses the rights nor escapes the duties of a citizen. Enjoying greater opportunities than the average citizen, the University student has greater responsibilities. Each student's personal life should be conducted in a context of mutual regard for the rights and privileges of others. It is further expected that students will demonstrate respect for the law and for the necessity of orderly conduct in the affairs of the community.

Students are responsible for being fully acquainted with the University catalog, handbook, and other regulations relating to students and for complying with them in the interest of an orderly and productive community. The student handbook, Hill Topics, is published and distributed annually so that students are aware of the University Standards of Conduct and all disciplinary regulations and procedures.

Since conduct and actions will be measured on an adult standard, students should understand that they assume full responsibility for the consequences of their actions and behavior. The academic community will be judged in large measure by the actions of its members. Therefore, it is incumbent upon students to include the implications for their community in their criteria for determining appropriate behavior. Failure or refusal to comply with the rules and policies established by the University may subject the offender to disciplinary action up to and including suspension from the University.

Religious Influences
The University, established by a government that recognizes no distinction among religious beliefs, seeks to promote no creed nor to exclude any. However, it will always be diligent in promoting the religious spirit and life of its students.

CHURCH CENTERS
Church centers are maintained on or adjacent to the campus for University students. These are the Baptist Student Center, John XXIII Catholic Center, Presbyterian Student Center, Tyson House (Episcopal), Lutheran Student Center, Wesley Foundation (Methodist), Hilile Foundation, and Christian Student Center.

Student Organizations
On the University campus there is a large number of student chapters of professional organizations, special interest clubs, and other extracurricular organizations. These organizations and clubs provide broad opportunities for student participation. 

A full listing of all student organizations on the campus will be found in Hill Topics. All of these clubs and organizations are under the general supervision of the Student Activities Office.

Social Fraternities and Sororities
The University has chapters of 26 national social fraternities and 19 national social sororities on its Knoxville campus. Membership in the fraternities and sororities is by invitation only.

The Fraternities are: ACACIA, Alpha Epsilon Pi, Alpha Gamma Rho, Alpha Kappa Lambda, Alpha Phi Alpha, Alpha Tau Omega, Beta Theta Pi, Chi Phi, Delta Tau Delta, Delta Upsilon, Farmhouse, Kappa Alpha, Kappa Alpha Psi, Kappa Sigma, Lambda Chi Alpha, Phi Delta Theta, Phi Gamma Delta, Phi Kappa Psi, Phi Sigma Tau, Pi Kappa Alpha.

The Sororities are: Alpha Chi Omega, Alpha Delta Pi, Alpha Epsilon Phi, Alpha Gamma Delta, Alpha Kappa Alpha, Alpha Omicron Pi, Alpha Xi Delta, Chi Omega, Delta Delta Delta, Delta Gamma, Delta Zeta, Gamma Phi Beta, Kappa Alpha Theta, Kappa Delta, Kappa Kappa Gamma, Phi Mu, Pi Beta Phi, Sigma Kappa, Zeta Tau Alpha.

Other University Services, Organizations, and Cultural Opportunities

Ombudsman Office
Personnel of the Ombudsman Office in the University Center assist students in the resolution of problems encountered with any aspect of the University. The office is open during the regular working day and students are welcome to drop in at their convenience. Problems are treated confidentially and are
dealt with expeditiously. The office does not replace existing structures but helps to insure their more adequate functioning and provides advice in creating ways of meeting the needs of students.

**Division of International Education**

The Division of International Education, established within the Office of the Vice Chancellor for Academic Affairs, serves as a central point from which the broad range of international and intercultural interests throughout the University are strengthened and related to each other. Located in 205 Alumni Hall, the International Education fosters the development, expansion, and continuation of the University's basic commitment to the international dimensions of the educational process.

In addition to the dissemination of information through the University community relative to opportunities for students and faculty to participate in study, research, and other related experiences abroad, the Division supports on-campus international programs, and serves as a major point of contact between the University and other U.S. and private agencies in the U.S.A. and abroad involved in international program development.

Most UK study abroad programs are coordinated through the Division, and new programs are planned with its assistance. Individual counseling by a study, work, and travel abroad consultant, a reference library containing information on all aspects of overseas opportunities, a fellowship/scholarship service, free publications, and information on special programs and projects are available in the Division.

**Hearing and Speech Services**

The Hearing and Speech Center, located at the corner of Avenue and Stadium Drive, offers complete diagnostic and therapeutic services to all University students with hearing and/or speech problems. This service is available to everyone regardless of ability to pay.

The Center serves as a clinical observation and training facility for students majoring in speech and hearing disorders. It also serves as a community Hearing and Speech Center, providing a preschool for deaf children, aural rehabilitation programs for the hearing handicapped, and speech and language pathology for persons of all ages who have been professionally referred to the Center.

**Services to the Physically Disabled**

Services relating to academic programs for students with physical disabilities, whether permanent or temporary, are coordinated by the Office of the Dean of Admissions and Records, 305 Student Services Building. In conjunction with the Physical Plant Office, the U.T. Bookstore, the Student Activities Office, and the academic departments, efforts are made to insure that attendance at the University of Tennessee, Knoxville, is as convenient as possible for students with physical disabilities.

These services include assistance during registration (preregistration, collection of class schedules, payment of fees, drop and add); the securing of special parking permits, elevator keys, tickets for special events; and similar efforts to relieve the special mobility problems of the students. The Physical Plant Office coordinates efforts to eliminate physical barriers to the degree possible, with priority being given to access and facilities for academic buildings.

The Office of the Dean of Admissions and Records is responsible for the scheduling of special class sections in order to respond to the particular needs of the physically handicapped.

**Vehicle Operation and Parking**

The University of Tennessee endeavors to provide adequate traffic control and parking facilities for vehicles being operated by students and staff. Large student parking areas are located on the perimeter of the campus, and the University provides an intracampus bus system between these parking areas and the center of the campus at no cost to the student. Faculty and staff parking areas are located throughout the campus.

Each person who operates a motor vehicle in connection with attendance or employment at the University must register that vehicle with the Traffic Section of the Security Department. There is no charge for vehicle registration; however, a parking permit is required for parking on all University lots, streets, parking structures or leased lots.

A University Parking Authority determines the parking policy, traffic regulations, and fees, and this information is published each year in the "University Traffic and Parking Regulations." Copies of the regulations will be available at the time students and staff register their vehicles or register for classes each quarter. Additional copies may be obtained from the Traffic Section of the Security Department, located at 1115 UT Drive.

**Cultural Opportunities**

Both the University and the surrounding Knoxville area offer varied cultural opportunities. Exhibits, concerts, recitals, and lectures, as well as plays are available throughout the year.

**THEATRE**

The University Theatres organization, under the aegis of the Department of Speech and Theatre, presents several programs of plays and films, in three theatre plants—the Clarence Brown Theatre, a two million-dollar plant containing excellent facilities for proscenium staging, open staging, standard film presentations, and laboratory productions (in a separate Studio Theatre of the Clarence Brown Theatre); the Carousel Theatre, a unique structure specially designed for arena staging, and for conversion to open-air performances in the summer; the Hunter Theatre, a beautiful and spacious outdoor theatre plant located in the Great Smoky Mountains near Gatlinburg, in which are presented musical productions and other plays suitable for outdoor presentation.

All University students are welcome to read for parts in plays staged in all of these University theatres, and to participate in other aspects of play and film presentations.

**ART**

Frank H. McClung Museum, in Circle Park, stands as a permanent memorial for "the display, preservation, and study of paintings, works of art, objects of natural history and historical objects." The museum contains five major areas of interest, including a permanent exhibit of natural history illustrating the sciences and the Green Memorial Room which contains valued items pertaining to the history of Knoxville and East Tennessee.

A major purpose of the museum is to provide superior teaching and research facilities for students, faculty, and staff.

**Eleanor Deane Audigier Memorial Art Collection**

This collection features paintings, 19th-century furniture, rare textiles, ceramics, sculpture, and small art objects. On permanent display in the Main Library, the collection was presented to the University by Louis Bailey Audigier in memory of his wife.

**Christmas Art Sale**

An annual fair held in early December in the McClung Museum. Faculty, students, and regional artists display modestly-priced works in time for Christmas buying.

**Dogwood National Invitation Art Exhibit**

Is planned each year to coincide with the Dogwood Arts Festival. Held annually in McClung Museum, the exhibition offers a cross-section of American art. In 1966, the University Center, in cooperation with the UT art department, inaugurated a program in which the University Center purchases works from this annual art exhibit. These works then become a part of the Ralph E. Dunford Permanent Collection, housed and exhibited in the University Center.

**Art Auction**

Held in Carousel Theatre each spring is a means of raising scholarship funds for art students. Original works of leading local and national artists as well as those of outstanding students in the art department are auctioned to the public. There is a nominal admission charge and unique door prizes are given throughout the auction.

**MUSIC**

**UT Choral Groups**

Consist of five choirs and glee clubs, all of which are outstanding. The UT Singers, the Women's Glee Club, Madrigal Singers, Vol Chorus, and the UT Chorus perform as well as in concerts in the Knoxville area. These choirs are open to all students by audition.

**UT Singers**

Are known as the University's "Good Will Ambassadors." Among the many projects of this group are the annual statewide tour each spring, and tours abroad on alternate years. The Singers have in the past been the musical company for all Hunter Hills Theatre productions.

**UT Opera Workshop**

Presents three performances yearly. The varied program of operatic music ranges from one-act to complete three-act operas with symphonic accompaniment and includes the selection of scenes from the classic repertory.

**UT Bands**

UT's marching band, celebrated as "The Pride of the Southland," presents outstanding entertainment on football Saturdays at both home and out-of-town games.

During winter and spring quarters, the band is divided into two concert groups which tour the United States. During the summer, the band performs at basketball games, and the laboratory group which provides valuable training for its members.

Requests for information on scholarships
and memberships should be sent to the Director, Pride of the Southland Band.

Fine Arts Presentations, scheduled under the auspices of the Department of Music, consist of a series of Faculty Recitals which feature various instrumental music and of Student Recitals presented by upperclass and graduate members of the music department in partial fulfillment of degree requirements. Scottish Rite Masonic Chair of Choral Art brings to the Knoxville area a distinguished conductor and/or composer in the field of choral art who serves as guest lecturer at a University workshop.

The Grace Moore Collection. After the death of opera star Grace Moore, a native of East Tennessee, her family donated to the University a large collection of memorabilia which is viewed by appointment at the Frank H. McClung Museum.

CONCERTS

There are two committees on campus charged with the responsibility of providing the University community with the finest names in popular and cultural programs.

Campus Entertainment Board. This student and staff committee has the exclusive responsibility of arranging entertainment on campus through a major concert series, a mini-concert series and the much smaller Guest Artist series.

Cultural Attractions Committee. A student, faculty and staff committee, this group is responsible for the presentation of programs in the arts to include dance, music and theatrical production.

LECTURES

Each quarter the Issues Committee presents programs around a current theme. The program is centered around speakers who are considered experts and represent diverse points of view on the designated topic.

BROADCASTING

WUOT, the University's 100,000-watt radio station, broadcasts seven hours each day to all of East Tennessee and portions of adjacent states. WUOT is primarily a fine music station, featuring the full repertoire of the world's great music. Musical programs are supplemented by broadcasts of all University basketball and baseball games, plays, by many documentary programs on contemporary problems, and by university-level discussion and exposition.

Annual Faculty Phi Kappa Phi Lectures


Athletics

The University encourages athletics as a part of its educational program. Men's intercollegiate sports are directed by the department of athletics, and the women's intercollegiate sports are administered through the Division of Student Affairs and are under the direction of the Department of Women's Intercollegiate Athletics.

There are women's teams in basketball, field hockey, gymnastics, swimming, tennis, track and field, and volleyball. Intercollegiate varsity games are played according to the rules of the Tennessee Women's Sports Federation and the Association of Intercollegiate Athletics for Women.

Eligibility for participation is determined by TCSWF, AIAW and the University faculty.

The men's intercollegiate sports are baseball, basketball, cross-country, football, golf, swimming, tennis, track and wrestling. Intercollegiate varsity and junior varsity games are played under the rules of the Southern Conference. Eligibility to participate is determined by the University faculty and the Conference.

A varied intramural sports club program is provided for all students. These programs are directed by the office of recreation and are housed at the Student Aquatic Center.

NEYLAND STADIUM

Neyland Stadium, the University's football stadium, was named in honor of the late General Robert R. Neyland, long-time football coach and athletics director. Shields-Watkins Field, the football field, is named in honor of William S. Shields, former member of the University Board of Trustees, and his wife.

The stadium, built and developed by the Department of Athletics over a period of years, can presently accommodate 80,000 spectators.

STOKELY ATHLETICS CENTER

The hub of the University's sports program is Stokely Athletics Center, which houses a 13,000-seat basketball arena and a fine indoor track. Also located here are coaches' offices, dressing rooms for all sports, and a Hall of Fame room.

OTHER FACILITIES

The University is proud, too, of its Tom Black Track, host to regional and national meets and built to Olympic specifications. The Student Aquatic Center, with its indoor and outdoor Olympic-size pools, separate diving pools, water polo court, sauna baths, and extensive exercise facilities, is a top spot of interest on the campus. Hudson Field, newly remodeled baseball field and stadium seating 1,500 fans in addition to providing dugouts and press box facilities, is one of the best complexes in the conference. Also, new tennis courts will afford an excellent vantage point for spectators.

Student Publications

A number of student publications are printed during each school year to serve as sources of information for new students, to report the many events of interest to the campus community, and to record the year's activities.

The Daily Beacon, a student newspaper, The Volunteer, yearbook of campus activities, and The Phoenix, quarterly literary magazine, are sponsored by The University of Tennessee Publications.

Other student publications are: Sorority Scope, published annually by the Panhellicenic Council, to provide information about the sororities at the University; FGO Rush Brochures, published annually by the Inter-Fraternity Council, to acquaint male students with the fraternities.

The Tennessee Engineer, published quarterly by students and faculty from the College of Engineering, to inform students and alumni of progress in the engineering field.

The Tennessee Farmer, published quarterly by the College of Agriculture Student-Faculty Council, for those students and alumni interested in developments in agriculture.

The Tennessee Law Review, published quarterly by students of the College of Law.

Traditions

Traditions play an important part in the life of a University student by recalling the history and heritage of the past, and by setting examples for future achievement. For instance, the Torch, the traditional symbol, spirit of the state and the University, is ever present during the student's campus life. This traditional symbol admonishes would-be leaders to hold their vision of campus ideals, and to hold themselves to high standards of behavior. The torch is symbolic of "Service," a spirit which reflects the student's role in the University.

Traditions at the University may be lighthearted as well as serious. Among the less serious traditions are three annual all-student productions which have become part of the University way of life. These are the noisy, bustling Homecoming, the lil and melody of Ali-Sing, and the spangle and wit of Carnicus.

Homecoming is a time when former students return to the University to visit and to renew old friendships. This is also the time when alumni will have an excellent opportunity to interact and to see what students are saying and doing.

Ali-Sing, begun in the early 1930s to encourage interest in harmony groups, features outstanding singing groups representing campus organizations.

Carnicus, which began as a parade and presentation of a Carnival Queen, has evolved through the years to the present form of competitive skits put on by campus organizations. This entertainment event features skits chosen for their humor, continuity, and perfection of presentation.

The Memorial Research Center and Hospital

The University of Tennessee Memorial Research Center and Hospital is a modern medical facility located just off the Alcoa Highway in Knoxville. The 520-bed general hospital provides patient care and training programs for interns, residents, senior medical students, and other health professionals, including medical technologists, x-ray technicians, and ancillary health personnel. Out-patient services are furnished to both area residents and University of Tennessee students. A
modern medical library is available for student and physician use. The Research Center conducts an active and vigorous research program that centers on hematological and oncologic problems. Excellent facilities for animal and laboratory experimentation are available. Postgraduate studies are pursued in cooperation with other life-science departments of the University. Special clinical investigations and the testing of experimental drugs involve both research and hospital staff and facilities. A continuing seminar and conference program presented by hospital and research staff and visiting lecturers serves to acquaint local medical and life-science workers with the most recent scientific developments.

University Publications

The various colleges, departments, and continuing education units composing the University issue many publications dealing with their educational, research, and public service programs. In addition, several publications are issued on a University-wide basis.

The University of Tennessee Record includes the General Catalog, Graduate School Catalog, Report on Research and Publications, Pictorial Record, and other publications of a record nature. The Torchbearer, issued four times a year, contains news, pictures, and other information about UT's teaching, research, and continuing education activities and is distributed to alumni, faculty and staff, and friends of the University. Other publications on programs of the institution may also be issued on a University-wide basis in response to requests of the various colleges, departments, and continuing education units. All of the publications are for free distribution.

University publications are under the general supervision of The University of Tennessee, Knoxville, Publications Committee appointed by the Chancellor of the University. The operating office for this committee is the Publications Service Bureau, located in the Communications and University Extension Building. Technical services of the Publications Service Bureau are offered to all colleges, departments, and other units of the University needing assistance with publication design, artwork, copyreading, editing, proofreading, and preparing specifications for printers. These services assist University departments in issuing the highest quality of publications possible within their printing budgets.

Learning Research Center

Recognizing that the learning process is exceptionally complex, the University established the Learning Research Center in 1964. Its primary purpose is to encourage faculty members to utilize the results of research in creating arrangements and conditions for learning.

The Learning Research Center publishes the Teaching-Learning Issues quarterly which circulates throughout the University system and on other campuses across the nation.

The University of Tennessee Press

The University of Tennessee Press is the institution's agency for the publication of scholarly books and monographs, nonfiction works of general and regional interest, and specialized textbooks for Tennessee and the Southeast. Manuscripts are solicited from University personnel and other authors. The Press imprint is controlled by an Editorial Board, to which recommendations are made by the Director acting with the counsel of scholarly appraisers, and the books are distributed on a sales basis. The Press office is located in the Communications and University Extension Building.
The University of Tennessee, Knoxville offers a graduate program which is one of the largest and most comprehensive to be found in the nation. Courses of study leading to Master's degrees are available at almost all colleges and schools. The University's present doctoral programs were initiated about thirty years ago and have expanded rapidly, with Doctor's degrees presently offered in fifty areas. Additional fields are being added as warranted by expanding faculty and facilities.

The principal aim of the Graduate School is that of education beyond the Bachelor's level through advanced courses, seminars, and research. The total resources of the University are made available to graduate students through its various colleges, schools, and special services. Each student is expected to take full advantage of the opportunities offered in the field of study and to maintain a high quality of achievement in the various phases of the program. To assist the student, certain procedures and regulations are described in subsequent paragraphs. These are formulated by the Graduate Council and administered by the Vice Chancellor for Graduate Studies and Research. The program of an individual student may be quite flexible but should still remain within the framework of the degree programs approved by the Council. Each student should be acquainted with the rules and procedures, as well as with any special requirements of individual colleges or departments.

General Information

Knoxville campus: The main and most varied offerings of the Graduate School are available at the Knoxville campus where advanced study at both the Master's and Doctor's level is provided in almost every college. More limited opportunities may be found at other locations as indicated below. Complete information concerning the Graduate School may be found in the Graduate Catalog, copies of which may be obtained by writing the Vice Chancellor for Graduate Studies and Research, The University of Tennessee, Knoxville, Tennessee 37916.

The University of Tennessee Space Institute: Opportunities for graduate study and research leading to the degrees of Master of Science and Doctor of Philosophy in certain areas of engineering and science are offered by the Space Institute located adjacent to the Arnold Engineering Development Center, Tullahoma, Tennessee. At the present time, graduate degree programs are available with a major in aerospace engineering, aviation systems, computer science, electrical engineering, engineering science, applied mathematics, mechanical engineering, and physics. In addition to the fundamental academic work characteristic of each discipline, research opportunities and supporting interdisciplinary course work are available to permit specialization in many aspects of atmospheric and space flight such as subsonic to hypersonic aerodynamics; aerospace vehicle design; control and guidance; modern materials and structures; propulsion systems; aircraft noise and sonic boom; flight simulation; avionics; plasma dynamics; flow diagnostics including spectroscopic and electrooptic means; systems management and cybernetics. Course work and research work in related areas of environmental pollution control, earth resources, energy conversion, materials and systems and simulation are also available. The research personnel and facilities of the Institute and those available at the Arnold Center through appropriate contractual arrangements provide an outstanding opportunity for meaningful research in these and other areas. Students who enroll at UTSA must be admitted to the Graduate School, University of Tennessee, Knoxville. Further information concerning the Institute may be obtained from the Dean, The University of Tennessee Space Institute, Tullahoma, Tennessee 37388. Application forms and an announcement of the Institute's programs are available upon request.

Kingsport University Center: The University of Tennessee offers at Kingsport resident graduate programs in science, engineering, and business at both the Master's and Doctor's level. The program is operated within the policies set by the Graduate Council of The University of Tennessee and is administered by the Vice Chancellor for Graduate Studies and Research. It is coordinated with the graduate and undergraduate offerings of East Tennessee State University.

Students who enroll in this program must be admitted to the Graduate School of The University of Tennessee, Knoxville.

Information and appropriate application forms may be obtained from the Director, Kingsport University Center, The University of Tennessee, University Boulevard, Kingsport, Tennessee 37660.

Oak Ridge Resident Graduate Program: The University of Tennessee offers graduate study programs at Oak Ridge, with work leading to the Master's degree in industrial management, industrial education, and statistics; and the Master's and Doctor's degrees in the areas of engineering, mathematics, and physical and biological sciences. Courses are given in the late afternoons, evenings and Saturdays, with research facilities provided by and used in cooperation with the Oak Ridge Associated Universities, and the Union Carbide Corporation Nuclear Division. This program is supported under a subcontract with Oak Ridge Associated Universities with principal support coming
from Union Carbide Nuclear Division. The University of Tennessee is one of the 43 colleges and universities which sponsors ORAU, a non-profit education and research management corporation.

Information and applications to the Graduate School may be obtained by writing the Director, University of Tennessee Graduate School, Post Office Box 117, Oak Ridge, Tennessee 37831.

**Radiation Biology:** A graduate major in the field of radiation biology leading to the M.S. and Ph.D. degrees is offered through the Institute of Radiation Biology. On the Institute staff are scientists from the Departments of Biochemistry, Botany, Chemistry, Microbiology, Physics, Zoology, the Memorial Research Center, and the UT-AEC Agricultural Research Laboratory of The University of Tennessee, the Biology and Ecology Physics Divisions of the Oak Ridge National Laboratory, and the Medical Division of Oak Ridge Associated Universities. Areas of specialization include biochemistry, biophysics, cytology, ecology, electron microscopy, embryology, entomology, genetics, hematology, immunology, microbiology, molecular biology, oncology, parasitology, pathology, physiology, and tissue culture.

**School of Social Work:** The University of Tennessee offers a fully accredited two-year program leading to the degree of Master of Science in Social Work, with programs in Nashville, Knoxville, and Memphis. The program is designed to prepare personnel for positions in family and child welfare agencies, psychiatric social work, school social work, medical social work, social group work, social welfare administration, community organization, corrections, rehabilitation, and service to the aging. Professional skills may be concentrated in the areas of social work treatment, and social welfare administration and planning.

Information regarding admission and programs may be obtained from the Dean of the School of Social Work, The University of Tennessee, P.O. Box 8820, Knoxville, Tennessee 37916.

**Chattanooga Engineering Graduate Program:** The University of Tennessee, Knoxville, offers a program of graduate work leading to the Master's degree in the area of engineering. Courses are given at The University of Tennessee at Chattanooga in the late afternoons and evenings. Students who enroll in this program must be admitted to the Graduate School of The University of Tennessee, Knoxville.

Information concerning this program may be obtained from the Director, Chattanooga Engineering Graduate Program, The University of Tennessee at Chattanooga, Chattanooga, Tennessee 37401.

**The University of Tennessee at Nashville:** Opportunities for graduate study leading to the degree of Master of Science in areas of civil engineering, engineering administration, industrial engineering are offered by The University of Tennessee, Knoxville, and are administered by the Vice Chancellor for Graduate Studies and Research.

Students who enroll in those programs must be admitted to The University of Tennessee, Knoxville, Graduate School. Information and appropriate forms may be obtained from the Registrar, The University of Tennessee at Nashville, 10th and Charlotte, Nashville, Tennessee 37203.

**The University of Tennessee — Oak Ridge Graduate School of Biomedical Sciences:** The University provides programs leading to the M.S. and Ph.D. degrees in various areas of biomedical sciences. Graduate students have the opportunity to study and to do research in conjunction with the Biology Division of the Oak Ridge National Laboratory.

Information concerning this program is available from the Director, The University of Tennessee — Oak Ridge Graduate School of Biomedical Sciences, Biology Division, Oak Ridge National Laboratory, Box Y, Oak Ridge, Tennessee 37830.

**ASSISTANTSHIPS AND FELLOWSHIPS**

Non-Service Fellowships supported by the University are awarded on the basis of ability and without regard to the field of study of the candidate. Successful applicants will need better than an overall 3.0 grade point average and high Graduate Record Examination scores. The normal deadline for receipt of completed applications is mid-February. Fellowships or traineeships in special areas are sometimes supported from non-University sources. Information concerning these fellowships, as well as application blanks, may be obtained from the Fellowship Assistant, the Graduate Office.

Graduate assistantships and additional fellowships are offered through many departments of the University. The stipends usually carry remission of tuition and fees. Information concerning these opportunities and appropriate application forms may be secured by writing to the head of the department in which the student expects to study.

---

### Majors and Degrees Available

<table>
<thead>
<tr>
<th>College of Agriculture</th>
<th>DEGREE</th>
<th>G.R.E. REQUIRED</th>
<th>ADMISSION TEST</th>
<th>G.M.A.T.</th>
<th>LETTER OF RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Biology</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural Economics</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural Engineering</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural Extension</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural Mechanization</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Animal Science</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Food Technology and Science</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forestry</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ornamental Horticulture</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and Landscape Design</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plant and Soil Science</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wildlife and Fisheries Science</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>College of Business Administration</th>
<th>DEGREE</th>
<th>G.R.E. REQUIRED</th>
<th>ADMISSION TEST</th>
<th>G.M.A.T.</th>
<th>LETTER OF RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management Science</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statistics</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>College of Communications</th>
<th>DEGREE</th>
<th>G.R.E. REQUIRED</th>
<th>ADMISSION TEST</th>
<th>G.M.A.T.</th>
<th>LETTER OF RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications</td>
<td>M.S., Ph.D.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>College of Education</th>
<th>DEGREE</th>
<th>G.R.E. REQUIRED</th>
<th>ADMISSION TEST</th>
<th>G.M.A.T.</th>
<th>LETTER OF RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult Education</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agricultural Education</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Art Education</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Education</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College Student Personnel</td>
<td>M.A.C.T.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curriculum</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curriculum and Instruction</td>
<td>E.D.S., E.D.D.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distributive Education</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3-Former Professors

5-All Ed.S., Ph.D. and Ed.D. applicants obtain special forms from the Graduate School.

*See page 163 for details.
<table>
<thead>
<tr>
<th>Major and Degree Available</th>
<th>G.R.E.</th>
<th>APT.</th>
<th>ADV.</th>
<th>G.M.A.T.</th>
<th>LETTER OF RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational Administration and Supervision</td>
<td>M.S., ED.S.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational Psychology and Guidance</td>
<td>ED.D.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Elementary Education</td>
<td>M.S.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English Education</td>
<td>M.S.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign Language and Education</td>
<td>M.S.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guidance</td>
<td>M.S.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Education</td>
<td>ED.D., PH.D.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home Economics Education</td>
<td>M.S.</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Industrial Education</td>
<td>M.S.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructional Materials</td>
<td>M.S.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics Education</td>
<td>M.S.</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Music Education</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music Education</td>
<td>M.S., ED.D.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Education</td>
<td>M.P.H.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Health Education</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreation</td>
<td>M.S., ED.S.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety Education and Service</td>
<td>M.S.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Health Education</td>
<td>M.S.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Science Education</td>
<td>M.S.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Science Education</td>
<td>M.S.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special Education</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocational Rehabilitation</td>
<td>M.S.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Counseling</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocational-Technical Education</td>
<td>ED.S., ED.D.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**College of Engineering**

1. Aerospace Engineering
2. Chemical Engineering
3. Civil Engineering
4. Electrical Engineering
5. Engineering Administration
6. Engineering Science
7. Environmental Engineering
8. Industrial Engineering
9. Mechanical Engineering
10. Metallurgical Engineering
11. Nuclear Engineering
12. Polymer Engineering

<table>
<thead>
<tr>
<th>Major and Degree Available</th>
<th>G.R.E.</th>
<th>APT.</th>
<th>ADV.</th>
<th>G.M.A.T.</th>
<th>LETTER OF RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.E., M.S., PH.D.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S., PH.D.</td>
<td>M.E., M.S., PH.D.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S., M.S., PH.D.</td>
<td>M.S., M.S., PH.D.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S., M.S., PH.D.</td>
<td>M.E., M.S.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.E., M.S.</td>
<td>M.E., M.S.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.E., M.S., PH.D.</td>
<td>M.E., M.S., PH.D.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S., PH.D.</td>
<td>M.S., PH.D.</td>
<td>X</td>
<td>X</td>
<td>or</td>
<td></td>
</tr>
<tr>
<td>M.S., PH.D.</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**College of Home Economics**

1. Child and Family Studies
2. Consumer Studies and Housing
   - Public Policy
   - Crafts, Interior Design and Housing
   - Food Science
   - Food Systems Administration
   - Home Economics
   - Nutrition
   - Textiles and Clothing

<table>
<thead>
<tr>
<th>Major and Degree Available</th>
<th>G.R.E.</th>
<th>APT.</th>
<th>ADV.</th>
<th>G.M.A.T.</th>
<th>LETTER OF RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.S.</td>
<td>M.S.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S.</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S.</td>
<td>M.S.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PH.D.</td>
<td>M.S.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S.</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S.</td>
<td>M.S.</td>
<td>X</td>
<td>X</td>
<td>or</td>
<td></td>
</tr>
</tbody>
</table>

**Intercollegiate**

1. Aviation Systems
2. Ecology
3. Organizational Psychology
4. Water Resources Development

<table>
<thead>
<tr>
<th>Major and Degree Available</th>
<th>G.R.E.</th>
<th>APT.</th>
<th>ADV.</th>
<th>G.M.A.T.</th>
<th>LETTER OF RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.S., PH.D.</td>
<td>M.S., PH.D.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S., PH.D.</td>
<td>M.S., PH.D.</td>
<td>X</td>
<td>X</td>
<td>or</td>
<td></td>
</tr>
<tr>
<td>M.S.</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**College of Liberal Arts**

1. Anthropology
2. Art
3. Audiology
4. Biochemistry
5. Biology
6. Botany
7. Chemistry
8. Computer Science
9. English
10. French
11. Geography
12. Geology
13. German
14. German Language and Literature
15. History
16. Mathematics
17. Microbiology
18. Music

<table>
<thead>
<tr>
<th>Major and Degree Available</th>
<th>G.R.E.</th>
<th>APT.</th>
<th>ADV.</th>
<th>G.M.A.T.</th>
<th>LETTER OF RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.A., PH.D.</td>
<td>M.A., M.F.A.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.A.</td>
<td>M.A.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S., PH.D.</td>
<td>M.A.C.T.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S., PH.D.</td>
<td>M.A.C.T.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S., PH.D.</td>
<td>M.A.C.T., M.A.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.A.</td>
<td>M.A.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S., PH.D.</td>
<td>M.S., PH.D.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.A.C.T., M.A.</td>
<td>M.A.C.T., M.A., PH.D.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PH.D.</td>
<td>M.A.C.T., M.A., PH.D.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S.</td>
<td>M.A.C.T., M.A., PH.D.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S.</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S.</td>
<td>M.S.</td>
<td>X</td>
<td>X</td>
<td>or</td>
<td></td>
</tr>
<tr>
<td>History</td>
<td>M.A.C.T., M.A., PH.D.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.A.</td>
<td>M.S., PH.D.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S.</td>
<td>M.S., PH.D.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.A.</td>
<td>M.A.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S.</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.A.C.T.</td>
<td>M.A.C.T., M.A., PH.D.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.A.</td>
<td>M.A.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S., PH.D.</td>
<td>M.S., PH.D.</td>
<td>X</td>
<td>X</td>
<td>or</td>
<td></td>
</tr>
<tr>
<td>M.S.</td>
<td>M.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All M.S. and PH.D. applicants obtain special application form from Associate Dean, College of Home Economics.

3-Departmental Rating Forms
2-Former Professors
3-Former Professors

2-Former Professors
Majors and Degrees Available

<table>
<thead>
<tr>
<th>Degree</th>
<th>G.R.E.</th>
<th>APT.</th>
<th>ADV.</th>
<th>G.M.A.T.</th>
<th>Letter of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.A., PH.D.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>3-Former Professors</td>
</tr>
<tr>
<td>M.A., T.M.S., PH.D.</td>
<td>X*</td>
<td>X*</td>
<td></td>
<td></td>
<td>4-Obtain forms from Department</td>
</tr>
<tr>
<td>M.A., PH.D.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>3-Former Professors</td>
</tr>
<tr>
<td>M.A.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.A.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td>3-Former Professors</td>
</tr>
<tr>
<td>M.A.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.A.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.A.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.A.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S., PH.D.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S., L.S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.P.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.S.S.W.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

School of Biomedical Sciences
Biomedical Sciences

School of Library and Information Sciences
Library Science

School of Planning
Planning

School of Social Work
(Memphis, Nashville and Knoxville)
Social Work

1Offered only at UT Space Institute.
2Offered also at Oak Ridge and Kingsport and other off-campus locations.
3Department doctoral option offered under the major of home economics.
4Interdisciplinary option offered in each department.
5Ph.D. applicants only.
6American applicants only.
7Ed.D. applicants only.
8International applicants only.
9Interdisciplinary Ph.D. applicants only.

Environment Center
Director:
J.H. Gibbons, Ph.D. Duke.
Associate Director:
R.A. Bohm, Ph.D. Washington (Missouri).
The Environment Center was created to encourage and support UT faculty and students to become involved in interdisciplinary studies to provide alternative solutions to problems related to energy and the environment. The Center provides assistance to faculty interested in developing research and public service projects, manages research and development projects that involve several disciplines, and assists Tennessee government and industry in specific problems related to energy and environment. It also participates in the Statewide Consumer Education Program, especially in developing material.

Projects include the following: environmental and human costs of coal production, solar energy utilization in buildings, energy conservation in buildings and industry, and regional solid waste management and resource recovery.
The Center is operated by UT, Knoxville through the Office of the Vice Chancellor for Graduate Studies and Research.

Transportation Center
Director:
K.W. Heathington, Ph.D. Northwestern.
Associate Directors:
F.W. Davis Jr., Ph.D. Michigan State; R.A. Mundy, Ph.D. Pennsylvania State.
Assistant Directors:
D.H. Jones, M.S. Tennessee; R.L. Perry, M.S. Tennessee; P.R. Tutt, M.S. Texas.
Assistant to Director:
C.P. Mauney, Ph.D. Tennessee.
The mission of the Transportation Center is to encourage and facilitate interdisciplinary research in all phases of transportation, to provide public service of a transportation-related nature, to manage the research program for the Tennessee State Department of Transportation, and to manage highway safety research for the Governor's Highway Safety Program.
The Center does research in all modes of transportation, including mass transit, highways, water, rail and air. The impact of the movement of people and goods on the environment and the technical aspects of transportation problems are concerns of the Center.
The Center is operated by UT, Knoxville through the Office for Graduate Studies and Research.

Graduate School of Biomedical Sciences (193)
Daniel Billen, Director
Full-Time Faculty
Professors:
D. Billen (Director), Ph.D. Tennessee; D.E. Olin, Ph.D. Rockefeller.
Associate Professors:
F.H. Gaertner, Ph.D. Purdue; F.D. Hamilton, Ph.D. Pittsburgh.
Assistant Professor:
N.W. Reeves, Ph.D. University of Glasgow (Scotland).
Research Assistant Professor:
C.T. Hadden, Ph.D. Washington.
The University of Tennessee—Oak Ridge Graduate School of Biomedical Sciences, established in 1966 under the joint auspices of the University of Tennessee and the Biology Division of Oak National Laboratory, is a novel venture in scientific graduate education. The National Laboratory, one of the three installations operated at Oak Ridge by Union Carbide Corporation for the United States Energy Research Development Agency, is a well-known center of basic research in biology, chemistry, physics, mathematics, metallurgy, health physics, and ecology. The school utilizes the staff and facilities of this large federal research institute, thus bringing directly into the
mainstream of full-time graduate study in the life sciences the talent and experience of that staff, as well as the most advanced research methods. The program of study, which incorporates a high faculty-to-student ratio, is based on intensive graduate courses supplemented by tutorial instruction, participation in a wide variety of seminars, and a heavy emphasis on research training and independent study. The program encourages and requires students, through individual initiative and self-discipline, to pursue graduate studies to the limits of their abilities. The school is not departmentalized and, apart from certain basic requirements, each student's curriculum is planned to meet individual needs, with the aim of giving: (1) strength in the basic sciences; (2) perception of the biomedical sciences as a whole; and (3) experience and training in a chosen specialty. The four research areas available for a Masters and Ph.D. thesis work are biochemistry, biophysics, carcinogenesis, cell biology, genetics, and physiology. Included are such subjects as microbiology, immunology, protein and enzyme chemistry, nucleic acid chemistry, cytology, radiobiology, virology, developmental biology, plant physiology and photosynthesis, experimental pathology, microbial and mammalian genetics, mutagenesis, and problems of aging. The Graduate School of Biomedical Sciences publishes supplementary information in addition to the regular Graduate Catalog. All inquiries concerning admission should be addressed to: Director, The University of Tennessee—Oak Ridge Graduate School of Biomedical Sciences, Biology Division, ORNL, P.O. Box Y, Oak Ridge, Tennessee 37830.

Courses
5000 Thesis
5070-80 Physical Chemistry for the Life Sciences (3, 3)
5110-20 Biochemistry (3, 3)
5140 Biophysics I (3)
5160 Genetics (5)
5170 Molecular Genetics (3)
5180 Cell Biology I (3)
5190 Cell Biology II (3)
5200 Mammalian Physiology (4)
5230 Biochemical Concepts in Medical Science (3)
5310-20-30-40 Biomedical Sciences Laboratory (3, 3, 3, 3)
5350 Biomedical Sciences Seminar (1)
5360 Biomedical Sciences Seminar (1)
5370 Biomedical Sciences Seminar (1)
5430-60-90 Graduate Research Participation (3, 6, 9)
5510-20-30-40 Special Topics in Biomedical Sciences (3, 3, 3, 3)
5700 Developmental Biology (3)
5740 Statistics for Biologists (3)
5750 Experimental Design in Biomedical Research (3)
5830 Physical Biochemistry (3)
5840 Bioorganic Reaction Mechanism (3)
5860 Cyrobiology (3)
5920 Mammalian Genetics (3)
5940 Classic Experiments in Genetics (3)
6000 Doctoral Research and Dissertation
6110 Seminar in Plant Physiology (1)
6120 Seminar in Cellular and Developmental Biology (1)
6130 Seminar in Genetics (1)
6140 Seminar in Mammalian Research (1)
6150 Seminar in Immunology (1)
6160 Seminar in Biophysics (1)
6170 Seminar in Biochemistry (2)
6180 Advanced Seminar in Biomedical Sciences (1-3)
6190 Seminar in Animal Virology (1)
6200 Nucleic Acid Chemistry (3)
6210 Protein Chemistry and Enzyme Mechanisms (3)
6220 Enzyme Regulation and Kinetics (3)
6240 Chemistry and Metabolism of Lipids (3)
6250 DNA, RNA and Protein Synthesis (3)
6260 Advances in Animal Virus Research (3)
6270 Viral Carcinogenesis (3)
6280 Chemical and Physical Carcinogenesis (3)
6290 Cancer Biology and Biochemistry (3)
6300 Mutagenesis (3)
6510-20-30-40 Advanced Topics in Biomedical Sciences (3, 3, 3, 3)

Graduate School of Library and Information Science (620)
Gary R. Purcell, Director

Professors:
E.E. Maudlin, M.S., LS, Illinois; G.R. Purcell (Director), Ph.D. Case Western Reserve.

Associate Professor:

Assistant Professors:

The Graduate School of Library and Information Science provides a library education program at both the graduate and undergraduate levels, leading to the preparation of librarians for work in all types of libraries. The program is to help meet the library manpower needs of the State of Tennessee. The programs of study of this school include a graduate curriculum leading to the degree of Master of Science in Library Science and an undergraduate program which allows for a minor in either the College of Education or the College of Liberal Arts.

The Undergraduate Program
The undergraduate library education program leads to a minor in the College of Education or the College of Liberal Arts. Students in other colleges may elect a minor in library science with the approval of their faculty advisers. The undergraduate minor is planned for the following groups of people: (1) Students preparing for positions as school librarians, in elementary and secondary schools; (2) teachers who wish to become better acquainted with books and other instructional materials; (3) school administrators who wish to explore the place of the library in the instructional program; (4) prospective candidates for the graduate program in library education; (5) persons seeking a position at the level of Library Associate as described in the manpower policy of the American Library Association.

The minimum requirements for a full-time position as school librarian in the State of Tennessee (both elementary and secondary) can be met by the following requirements for teacher certification and completion of the following library courses: 3510, 3520, 3530, 4140, 4150, 4270, 4330, and 4750.

The Graduate Program
The objective of the program is to prepare individuals to assume a role in the libraries and information centers of today and the future. Students are exposed to various ideas about the role of libraries and librarians in society and the processes by which knowledge is communicated through the medium of the graphic record. Students acquire a familiarity with the bibliography and the literature of various subject fields. They are expected to develop the ability to evaluate and use various types of print and non-print materials and are also introduced to current concepts of the management of library operations and services.

The basic professional core curriculum, designed to provide sound foundations in principles applicable to all types of libraries, is augmented by elective choices within library and information science as well as other disciplines represented in the University community. For further information write for a Graduate School Catalog.

UNDERGRADUATE
3510 Books and Related Materials for Children (3) Readings based on materials suitable for children in leisure time or classroom activities; criteria for selecting books, magazines, recordings, films, and related materials; story-telling and other devices for encouraging reading. Undergraduate credit only. Prereq: Admission to teacher education or junior standing. (Same as Educ. C & I 3510.)
3520 Books and Related Materials for Young People (3) Basically the same approach as 3510, but adapted to needs and interests of teenagers. Undergraduate credit only. Prereq: Admission to teacher education or junior standing. (Same as Educ. C & I 3520.)
3530 Books and Related Materials for Adults (3) Principles of materials selection, selection aids, annotations, book reviews, evaluation of adult books in various subject areas. Undergraduate credit only. Prereq: Admission to teacher education or junior standing.
4140 Libraries and Librarianship (3) Historical development of libraries in society and their significance in twentieth century; career aspects of librarianship; professional ethics and associations.
4150 School Library Administration (3) Objectives, functions, and place of school library; relationships to local and state services; cooperative planning for quarters and materials; evaluation. (Same as Educ. C & I 4150.)
4270 Organization of Library Collections I (6) Acquisitions, cataloging and maintenance of library collections.
4330 Introduction to Reference Materials (3) Basic information sources and services for all libraries.
4750 Audiovisual Methods and Techniques (3) (Same as Educ. C & I 4750 and Vocational-Technical Education 4750.)

GRADUATE

5000 Thesis
5002 Non-Thesis Graduation Completion (3)
5110 Problems in Library Science (3)
5120 Problems in Library Science (3)
5130 Problems in Library Science (3)
5140 Research Methods in Library Science (3)
5200 Subject Reference and Bibliography (3)
5210 Sources and Services for the Social Sciences (3)
5220 Sources and Services for the Natural Sciences (3)
5230 Sources and Services for the Humanities (3)
5340 Organization of Library Collections II (3)
5250 Government Publications I (3)
5260 Government Publications II (3)
5270 Legal Bibliography (3)
5300 Library Management (3)
5310 Library Systems and Services (3)
5320 Library and Information Networks (3)
5330 Academic Libraries (3)
5350 School Libraries (3)
5360 Technical Libraries and Information Centers (3)
5370 The Library in the Community (3)
5380 Seminar: Academic Public, School or Special Libraries (3)
5400 Library Facilities (3)
5500 Principles of Materials Selection (3)
5510 Multimedia Resources in Libraries (3)
5520 History of Books and Printing (3)
5530 Contemporary Publishing (3)

5540 Special Collections—Archives and Rare Books (3)
5600 Reading Guidance for Children and Young People (3)
5610 Mass Communications and the Library (3)
5620 Traditional Literature and Oral Narration (3)
5630 Critical History of Children's Literature I (3)
5640 Critical History of Children's Literature II (3)
5691 Production and Use of Audiovisual Materials (3)
5700 Automation of Library Processes (3)
5710 Introduction to Information Science (3)
5720 Information Systems Analysis and Design (3)
5730 Information Retrieval Systems Laboratory (3)
5999 Practicum (6, 9, or 12)

Graduate School of Planning (782)

J.A. Spencer, Director

Professors:

Associate Professors:
J.A. Spencer (Director), M.C.P., Ohio State; R.L. Wilson, M.S.P., North Carolina.

Assistant Professors:

The Graduate School of Planning offers a two-year graduate course leading to a degree of Master of Science in Planning. The purpose of study is the education of professional planners, competent to handle positions of increasing technical and administrative responsibility. Graduates are candidates for professional service in regional, city, county, and metropolitan area planning agencies; in local, state, and federal agencies concerned with physical, economic, and administrative planning; in private business and organizations dealing with urban problems; and in private consulting practices.

The school, located in Knoxville, is in an excellent position to draw on the knowledge of the nation's, and perhaps the world's, outstanding regional planning and development agency, the Tennessee Valley Authority. The students can also view and study the close-at-hand economic problem area of Appalachia.

The Field of Planning

Planning is one of the challenging techniques by which modern man seeks to harness new methods and technologies in urban growth, economic development and redevelopments, housing, and transportation.

Planning seeks to improve not only the physical but also the economic and social environment of the individual. Through the use of public policies, and through maximum cooperation between private economic and public purposes, it seeks to increase the opportunity of the individual; to better the chances for a decent job and a decent home in a community of which to be proud. Planning does not accept our present urban and rural environments as the best of all possible worlds. The planner can expect a challenging, sometimes frustrating, but always rewarding career.

Planning is a rapidly evolving field, but at present it is chiefly concerned with two general areas. Regional and state planning is concerned primarily with economic and resource regions, the forces that generate economic growth, and the ways in which state and regional resources can be organized to generate area development. Urban planning is concerned primarily with understanding the urban environment, the social and economic forces that affect it, and the administrative and technological means by which it may be guided.

Graduate Education in Planning

The curriculum is organized on a basis of six quarters, or 12 credit hours, including a nine-credit thesis. The curriculum provides the student with core courses in planning theory, methods, and techniques, and also takes advantage of rich offerings at The University of Tennessee in related fields such as government, economics, geography, civil engineering, and sociology.

The course of study ordinarily requires two years, with a work internship during the summer between the two years. However, students entering the school with previous planning experience have an option of taking six consecutive quarters of study, utilizing the summer period. Planning courses as well as related courses will be offered during the summer period.

The purpose of this is to serve the needs of those planners now in the field, who wish to acquire their professional degree but who can spare only the minimum amount of time from their jobs because of financial or family considerations. By going to school for six consecutive quarters they do not face the problem of having to move their family during the three-month period between school years.

Entering students follow a suggested program of courses which provides training in the basic elements of planning. These include studies in theory, history, analytical methods,
design, and legislation, as well as related courses in government, geography, sociology, and economics. Students in the latter quarters of the first year, and in the second year, have the option of pursuing studies in an urban concentration or a regional concentration. They are permitted to pursue particular interests through the choice of electives approved by the Graduate School of Planning. Practice in research and analysis on a particular planning problem or topic is obtained through the preparation of an individual thesis. A comprehensive written examination on previously taken graduate course work will be given to students who have finished their first year of study and before they have finished their second year of study. An oral examination will be given on the thesis subject prior to graduation.

Faculty
Core planning courses are taught by the full-time faculty of the Graduate School of Planning. Related courses are taught by other specialists drawn from the University faculty. In most instances these are senior faculty members. In addition, the services of experienced professional planners in TVA and other public and private organizations are called upon to broaden the scope of the students' understanding. A variety of outside speakers and seminar leaders provides insight into particular problems of significance to planners.

UNDERGRADUATE
4100 Introduction to Planning (3) History of planning, familiarization with operations of contemporary planning, concept of systems, current trends and issues. Emphasis on relationship between planning and society in which it occurs.
4200 Planning Communications (1) Graphic, oral and written communication of information and recommendations.

GRADUATE
5000 Thesis
5002 Non-Thesis Graduation Completion (3)
5100 Theory of Planning (4)
5130 Planning Research Methods I (3)
5135 Planning Research Methods II (3)
5160 Planning and Utilities (3)
5230 Urban and Site Design (2)
5270 Planning and Transportation (3)
5280 Planning Methods (5)
5300 Regional Planning (3)
5310 State Planning (3)
5340 Implementation (3)
5350 Urban Spatial Structure (2)
5360 New Towns (2)
5380 Housing (2)
5410-20-30 Special Topics in Planning (1-3, 1-3, 1-3)
5440 Legislation and Land Use Controls (4)
5450 Urban Renewal (2)
5500 Synthesis (9)
5670 Social Planning (3)

Graduate School of Social Work (905)
Ben P. Granger, Dean
Betty J. Cleckley, Assistant Dean
David P. Fauri
Branch Director, Nashville
Roger M. Nooe
Branch Director, Knoxville
Mary K. Mullins
Branch Director, Memphis

Professors:
B.P. Granger (Dean), Ph.D., Brandeis; M.H. Bloch, M.S., Ohio State; R.C. Bonovich, D.S.W., Washington University (St. Louis); G.W. Fryer, Ed.D., Columbia; B. Orcharo (Emeritus), M.S., Western Reserve; A.J. Robins, M.S.W., Carnegie Institute of Technology; S.W. Spencer (Emeritus), M.S., New York School of Social Work, M.A. Stites (Emeritus), A.M., Pennsylvania.

Associate Professors:
L.M. Beasley, D.S.W., Denver; B.J. Cleckley, Ph.D. Brandeis; G.T. Cruithinds, B.S.W. Tulane; D.P. Fauri, D.P.A., Syracuse; L.H. Gangaware, M.S.S.W., Columbia; D.L. Ingle, M.S., Certificate in Psychiatric Social Work, Western Reserve; R.A. Lohman, A.M., Minnesota; E.K. Marshall, Ph.D. St. Louis; G. McIver, M.S.S.W., Tennessee; M.K. Mullins, Ph.D. Chicago; R.M. Noe, D.S.W., Tulane; J.D. Orten, M.S.S.W., Tennessee; E.J. Pawlik, M.S.W., Wayne State; R.B. Rowen, Ph.D., Arizona; R.W. Sellsard, M.S.W., Michigan; P.F. Whitmore, M.S.W., Tennessee; P.G. Zarbock, M.S.S.W., Wisconsin.

Assistant Professors:
W.J. Bell, M.S.W. Michigan; A.R. Ford, M.S.W., Atlanta; R.K. Hampton, M.S.W., Pennsylvania; A.E. Moses, M.S.W., California; N.J. Taylor, M.S.W., Smith College; S.A. Webster, M.A., Wisconsin; H.A. Wilson, M.S.S.A., Western Reserve University

'T relieved

The University of Tennessee School of Social Work is a fully accredited, two-year graduate professional school, with a program leading to the degree of Master of Science in Social Work. Founded in 1942, the School is a charter member of the Council on Social Work Education and was initially accredited by its predecessor, The American Association of Schools of Social Work. The School's objectives are to prepare students for competent and responsible social work practice; to assist social welfare agencies and staffs; to increase the quality and quantity of service through the provision of special courses, institutes, and workshops; to provide appropriate educational experiences for students preparing for related fields; to advance standards of professional practice, particularly in this region, through collaboration with social welfare agencies and educational institutions.

The full two-year curriculum is offered in all three branch locations:

- The two-year graduate program qualifies students for positions in public and voluntary social service agencies including family and child welfare, medical and psychiatric social work, social group work, education, administration, community organization, corrections, rehabilitation, and services to the aging.

The Graduate School of Social Work publishes its own catalog. All inquiries concerning admission to the School of Social Work should be addressed to the Office of the Vice Chancellor for Graduate Studies, University of Tennessee, Knoxville, Tennessee 37916.

Courses
5000 Thesis
5002 Non-Thesis Graduation Completion (3)
5070 Social Work Research I (3)
5080 Social Work Research II (2)
5081 Evaluative Research in Social Work (2-3)
5082 Practicum in Social Work Research (3-9)
5083 Directed Readings in Research (2-4)
5090 Special Problems in Social Work (2-9)
5110 Social Welfare Policy and Services I (3)
5120 Social Welfare Policy and Services II (3)
5130 Social Policy Analysis (2-3)
5161 Social Welfare Seminar (2-3)
5210-20 Human Behavior and Social Environment I and II (3, 3)
5290 Special Accelerated Program in Social Work (15)
5310 Human Behavior and Social Environment (2-3)
5311 Imaginative Perspectives on the Human Condition (2-3)
5312 Psychopathology and Social Deviance (2-3)
5313 Deviant Behavior of Children and Youth (2-3)
5314 Comparative Theories of Personality (2-3)
5315 Human Sexual Problems (2-3)
5316 Mental Health and Employment (2-3)
5410 Social Work Practice I (3)
5420 Social Work Practice II (3)
5440 Family Therapy in Social Work Practice (2-3)
5441 Transactional Analysis (2-3)
5442 Short-Term Treatment (2-3)
5443 Seminar on Behavior Therapy (2-3)
5444 Social Work Practice with the Poor (2-3)
5460 Social Work Treatment with Individuals and Families (3)
5470 Contemporary Treatment Modalities: Individual and Family (2-3)
5560 Social Work Treatment with Groups (3)
5561 Interpersonal Skill Development (2-3)
5570 Comparative Methods of Group Treatment (2-3)
5601 Social Work in Rural Communities (2-3)
5661 Community Organization (2-3)
5670 Social Planning (3)
5671 Planning and Management of Change in Social Welfare (2-3)
5701 Administration in Social Work (2-3)
5702 Organizational Design of Social Welfare Agencies (2-3)
5741 Supervision in Social Work (2-3)
5742 Consultation in Social Work (2-3)
5743 Management of Human Resources in Social Welfare (2-3)
5744 Education and Training in Social Welfare (2-3)
The Master's Program

Minimum requirements for the Master's degree are the satisfactory completion of the following courses:

1. An Engineering Core, twenty-seven hours of graduate credit consisting of Engineering Administration 5650, at least three courses chosen from Industrial Engineering 4150, 5110, 5520, and 5710, and a complement of engineering courses normally selected from the student's undergraduate major department or from courses of other departments pertinent to this program.

2. A Business Administration Core, fifteen hours of graduate credit consisting of Accounting 5810, Finance 5050, Marketing 5050, Industrial Management 5130 and Transportation 5210.

3. General Electives, nine hours of graduate credit chosen from computer science, economics, engineering, management science, mathematics, psychology, statistics, and other program-related disciplines. These electives shall not include courses in business administration, other than economics, management science and statistics.

The program requirement totals fifty-one hours of graduate course credit. No thesis is required. A final examination must be passed on the work offered for the degree. Course prerequisites for the program are Accounting 5050, Computer Science 3150, Industrial Engineering 4520, and Statistics 3450 or their equivalents. None of these prerequisites may be counted as part of the 51 hours of course credit offered for the degree. These course prerequisites will be waived upon presentation of evidence of competency in the course subjects. Other elective course may be required, depending upon the student's background and the electives chosen.

Courses

5002 Non-Thesis Graduation Completion (3)
5900 Project in Engineering Administration (3)

Space Institute

Charles H. Weaver, Dean
Robert L. Young, Associate Dean
Arthur A. Mason, Assistant Dean

Aviation Systems (169)

Professors:
G.W. Braun (Emeritus), Ph.D. Goettingen;
L.W. Crawford, Ph.D. Cincinnati;
J.B. Dicks, Jr., Ph.D. Vanderbilt;
F.W. Donaldson, Ph.D. Texas; W. Frost, Ph.D. Washington;
E. Noack, Ph.D. Technical University of Berlin; K.E. Harwell, Ph.D. California Institute of Technology;
E.C. Huebschmann, Ph.D. Texas; W.F. Jacobs, Ph.D. Goettingen;
A.A. Mason, Ph.D. Tennessee;
M.K. Newrnug (Emeritus), Ph.D. Columbia;
K.C. Reddy, Ph.D. Indian Institute of Technology (India); F. Shahroki, Ph.D. Oklahoma;
K. Tempelmayr, Ph.D. Tennessee; C.H. Weaver (Dean, Space Institute; Vice President for Continuing Education), Ph.D. Wisconsin, P.E.;
M.A. Wright, Ph.D. Wales; J.M. Wu, Ph.D. California Institute of Technology; Y.C.L. Wu, Ph.D. California Institute of Technology; R.L. Young, Ph.D. Northwestern.

*Alumni Distinguished Service Professor

Water Resources Development (991)

Floyd C. Larson, Director, Water Resources Research Center

Specific requirements for admission to this program are a Bachelor's degree in law, engineering, or one of the physical or social sciences from an accredited college or university, and evidence of ability to do work of graduate quality, as ascertained by undergraduate records. Also considered will be work record, if any, last held of the student; and recommendation. The general policies and requirements of the Graduate School apply to this program.

The degree of Master of Science requires 45 quarter hours of graduate studies.
including 9 hours of thesis work. The exact curriculum of each student is decided in consultation with a faculty committee, depending on the student's background and field of interest. If the student's undergraduate work has, in the opinion of the faculty committee, sufficient training and education in one or more of the required courses, the student may substitute other elective courses. Electives will consist of advanced work in the student's specialty or in a related field.

UNDERGRADUATE

3410 Principles of Ground Water Geology (3) (Same as Geology 3410.)
3420 Geohydrology (3) (Same as Geology 3420.)
3565 Introduction to Public Administration Organization and Management (4) (Same as Political Science 3565.)
4110 Managerial Economics (3) (Same as Economics 4110.)
4810 Water Law (3) (Same as Environmental Engr. 4810 and Law 8975.)

GRADUATE

5000 Thesis
5130 Planning and Research Methods I (3)
5160 Planning and Utilities (3)
5200 Water Resources Systems (3)
5330 Descriptive Hydrology (3)
5340 Hydrology of Agricultural and Forest Lands (3)
5410-20-30 Interdisciplinary Seminars (3, 3, 3)
Institute of Agriculture

Webster Pendergrass, Vice President
Elbert J. Chapman, Assistant Vice President

The Institute of Agriculture traces its history to 1869 when the University was designated as Tennessee's Federal Land-Grant Institution. Under terms of the Federal Land-Grant Act, the University was enabled to offer instruction in agriculture and the mechanic arts for the first time. Since 1869, agricultural programs at the University have been expanded to include research for the development of new knowledge and extension for dissemination of such knowledge to rural people. Thus the Institute of Agriculture has come to include the work of four main divisions: College of Agriculture, College of Veterinary Medicine, Agricultural Experiment Station, and Agricultural Extension Service.

Agricultural Experiment Station

Dorsey M. Gossett, Dean
Thomas J. Whatley, Associate Dean

The Agricultural Experiment Station was established in 1887 by an Act of Congress known as the Hatch Act. The purpose of the Experiment Station is the promotion of practical agriculture through fundamental and applied research on all problems affecting farmers of the state. For example, there are research projects dealing with the development of new and improved varieties of farm and garden crops, the development of improved methods for the control of crop insects and crop diseases, and the evaluation of systems for the feeding, pasturing and management of livestock. Also, much attention is given to soils and fertilizers, mechanical devices of importance on the farm, human nutrition, and various rural economic and social problems.

Priority is given to problems of special importance to the farmers of Tennessee. The results of investigations are carried to the people in the form of bulletins, circulars, and reports, through the Agricultural Extension Service, and to the state educational system through the Colleges of Agriculture and Education. Rural life has been greatly enriched by the results of these investigations, as have the curricula of the school system.

Headquarters and the Main Station of the Agricultural Experiment Station are located at Knoxville. In addition, the Experiment Station operates research facilities at other locations in the state as follows:

UT-ERDA COMPARATIVE ANIMAL RESEARCH LABORATORY

This laboratory is located about 20 miles west of Knoxville near Oak Ridge. A program of radiobiological research in the field of agriculture is carried out by the Agricultural Experiment Station under contract with the Energy Research and Development Administration. The program includes research with farm and laboratory animals, and in applied radiobiology and plant breeding.

Facilities at the laboratory include approximately 2,000 acres of land for maintaining livestock and growing plants to be used in experimental work, a research laboratory especially suited to large animal work, and a unique gamma radiation field.

In 1962, 2,200 acres of forest land near the laboratory area were acquired by the University. An arbororetum containing some 250 acres has been established. Emphasis will be on collecting woody plants. In addition, this land will be used for research on recreational use of forested areas and on the adaptation of forest species to soils and other site factors.

THE UNIVERSITY OF TENNESSEE AT MARTIN

On January 1, 1965, the Agricultural Experiment Station was assigned responsibility for administration of the 600-acre farm adjacent to the Martin campus. The farm is used for both research and teaching. At the same time the School of Agriculture at Martin assumed research responsibilities and is working closely with the different departments in Knoxville in planning and executing the research program.

Experiments are under way with field crops, horticultural crops, dairy cattle, and beef cattle. The primary concern is with problems of special importance to the southeastern part of the state.

BRANCH STATIONS

Dairy Experiment Station near Lewisburg contains 615 acres and is operated in cooperation with USDA-ARS. Major emphasis is breeding and nutrition of Jersey cattle.

Highland Rim Experiment Station near Springfield contains 586 acres. Major emphasis is breeding and culture of dark-fired tobacco, other agronomic crops, and livestock.

Middle Tennessee Experiment Station near Spring Hill contains 1,153 acres of representative high-phosphate Central Basin soils. Studies are under way with field crops, beef cattle, sheep, and dairy cattle of the Holstein breed.

Plateau Experiment Station near Crossville consists of three farms totaling 2,150 acres. Studies with beef cattle, sheep, field and horticultural crops provide information about results to be expected under the cooler, more humid climate and special soil conditions of the Cumberland Plateau.

Tobacco Experiment Station near Greeneville consists of 536 acres. Extensive research on Burley tobacco is in cooperation with USDA-ARS. In addition, beef cattle and field crops are studied.

West Tennessee Experiment Station near Jackson contains 860 acres. Major emphasis is culture and breeding of cotton, other
agronomic crops, horticultural crops, and breeding and feeding of dairy cattle.

FIELD STATIONS

Ames Plantation near Grand Junction includes 13,900 acres (about 10,000 acres in forest). The land is in trust by the Ames Foundation for use by the Institute of Agriculture. Large scale experiments involve forestry, farm management, crop production, and breeding and management of beef cattle and swine.

Cumberland Forestry Field Station consists of 3 tracts in Morgan and Scott Counties with a total area of 9,450 acres.

Friendship Forestry Field Station is located in Hamilton County and consists of 660 acres owned by the TVA. Forestry research is conducted in cooperation with TVA.

Highland Rim Forestry Field Station near Tullahoma includes 860 acres. Research results apply generally on the Highland Rim.

Milan Field Station in West Tennessee consists of 497 acres. Research emphasis includes mechanization of the production of cotton, soybeans, and horticultural crops.

Agricultural Extension Service

William D. Bishop, Dean
M.L. Downen, Assistant Dean
Troy W. Hinton, Assistant Dean
Mildred F. Clarke, Assistant Dean

The Agricultural Extension Service serves the entire state of Tennessee. This educational service of the Institute of Agriculture is active in every county extending information on agriculture and home economics and related subjects to farm families and other citizens.

This educational organization was established July 1, 1914, by an Act of Congress commonly known as the Smith-Lever Act. Staff members of the Agricultural Extension Service use a wide range of methods—farm and home visits, educational meetings, field demonstrations, publications, and other means—to develop educational programs for people who do not have the opportunity to enroll in resident courses of instruction at colleges.

Extension staff members develop and carry out programs to meet the specific needs of the residents of their counties. They work with both adults and youth. Educational activities for boys and girls are carried out through 4-H Clubs which are organized in schools and in communities.

County, state and federal governments cooperate in carrying out the Agricultural Extension Service program. The United States Department of Agriculture, the State of Tennessee, and each county government provide the financial support. Any county which appropriates funds for the program may have an office located there to serve its residents. Most offices are located in county seat towns. Headquarters for the Agricultural Extension Service is at Knoxville and district administrative offices are located in Cookeville, Knoxville, Chattanooga, Nashville, and Jackson.

As a distinct administrative unit of the Institute of Agriculture, the Agricultural Extension Service works closely with the other units of the Institute—the Agricultural Experiment Station, the College of Agriculture, and the College of Veterinary Medicine—in providing a total program of research, instruction, and extension for developing the agriculture of the state.

College of Agriculture

O. Glen Hall, Dean

Curricula in Agriculture

Broad opportunities for young people to prepare for a future in agriculture, forestry, and wildlife and fisheries science are offered in the College of Agriculture. The college provides curricula leading to the degrees of Bachelor of Science in Agriculture, Bachelor of Science in Agricultural Engineering, Bachelor of Science in Wildlife and Fisheries Science. The professional degree program in agricultural engineering receives strong support from the College of Engineering and is fully accredited by the Engineering Council for Professional Development. The forestry curriculum is fully accredited by the Society of American Foresters.

A pre-professional curriculum in veterinary medicine is offered in the college. This program is designed to prepare students for admission to the new College of Veterinary Medicine located on the Knoxville campus.

Students pursing programs leading to the degree of Bachelor of Science in Agriculture major in one of several specialized areas of agriculture offered in the college. There are the areas of agricultural business, agricultural economics, agricultural education, agricultural mechanization, animal science, food technology and science, ornamental horticulture and landscape design, and plant and soil science. Specific courses required for each of these areas are given under the departmental headings in this section of the catalog. A student must complete the curriculum outlined by the department in which the student is majoring in order to receive a degree. In all areas of specialization, particular emphasis is placed upon the sciences as a background for agricultural instruction; other courses are included to provide a liberal education. In all subject matter departments, there is the opportunity to select elective courses appropriate to the educational objectives of individual students. The choice of electives in each curriculum should be made with the guidance of the faculty adviser.

All academic and professional requirements of the University as stated in the front section of this catalog must be met by agricultural students, and they must complete the requirements in one of the organized curricula. Students transferring into the College of Agriculture from other than the UTK campus must have a grade point average of 2.0. Each curriculum leading to the degree of Bachelor of Science in Agriculture includes the requirements of the basic curriculum for agriculture. For this degree, the minimum requirement is 198 quarter-hour credits.

Students may include 6 hours of lower division military science and 9 hours of advanced military science credit in the 198 total. A minimum of 45 hours in agricultural courses is required. For the degree of Bachelor of Science in Forestry, and in Wildlife and Fisheries Science, the minimum requirement is 198 quarter-hour credits. For the degree of Bachelor of Science in Agricultural Engineering, the minimum requirement is 198 quarter-hour credits.

The use of transfer credit in technical agriculture appropriate to each organized curriculum will be considered and approved by the adviser of that curriculum and the Dean of the College of Agriculture. When desirable, validating or proficiency examinations may be requested to determine competence in an area and to avoid unnecessary repetition. Such examinations should be taken during the first quarter in residence, and must be conducted under the supervision of the head of the department in which the course is offered.

A minimum of 27 quarter hours of upper division technical agriculture appropriate to a specified major requirement, and approved by the major adviser, must be completed in residence to fulfill the requirements of baccalaureate degrees offered in the college.

Satisfactory/No Credit Courses

Students may include a maximum of 30 hours in non-directed electives taken on a satisfactory/no credit basis in the total hours required for graduation.

Graduate Study in Agriculture

MASTER OF SCIENCE PROGRAMS

Programs of graduate study leading to the Master of Science degree are offered in all departments in the College of Agriculture. See the Graduate Catalog for details.

A Winter Short Term for Agricultural Extension personnel and other professional agricultural workers is held each year during the last half of the winter quarter. Those attending must be accepted by the Graduate School. Students may take three courses and earn nine quarter hours of graduate credit toward the Master of Science degree. A number of courses are offered in Agricultural Extension Education and in other departments in the College of Agriculture. Additional information and a five-year schedule of course offerings may be obtained by writing to Professor R.S. Dotson, Head, Department of Agricultural Extension Education, College of Agriculture, Knoxville.

DOCTORAL PROGRAMS

Graduate study programs lead to the Doctor of Philosophy degree in:

Animal Sciences

Agricultural Economics

Agricultural Engineering

Plant and Soil Science

General requirements and policies of the Graduate School of The University of Tennessee relating to admission to the Graduate School, residence, language, research, examination, and admission to candidacy shall apply to these programs and are described in the Graduate Catalog.

Facilities

The College of Agriculture uses the facilities on the agricultural campus, on
Institute of Agriculture

University farms located near Knoxville, and on the main University campus. On the agricultural campus are found the main agricultural building, Morgan Hall; the Agricultural Engineering Building; McCord Hall; the Dairy Products Building; McLeod Food Technology Building; C.E. Brehm Animal Sciences Building, which includes a large pavilion; Ellington Hall which houses the plant science departments; and greenhouses for teaching and experimental work. These buildings have been erected recently to provide facilities comparable to the best in the country for the departments which they serve.

Farms adjacent to or within eight miles of the agricultural campus are used both for instructional and experimental purposes. Morgan Farm (80 acres), Cherokee Farm (550 acres), Plant Science Farm (212 acres), and a livestock farm (510 acres) provide excellent field laboratory facilities for instructional programs offered in the College. Cherokee woodlot (120 acres), the Oak Ridge Forest (2,260 acres), and Ames Plantation (8,000 acres of forested land) provide excellent facilities for field work in forestry.

Transportation by bus is provided for classes of agricultural students from the agricultural campus to the University farms and to other points of interest where instruction may be given. Transportation by bus is provided between the agricultural campus and the main University campus so that students may make the change between classes without serious inconvenience.

The facilities of the University on the main campus are available to agricultural students.

Courses in the basic sciences, business, communications, engineering, etc., are open to agricultural students and are taught on the main University campus.

Selection of Curriculum

Agricultural students who have determined their area of special interest may choose the curriculum most adaptable to their needs when they register as freshmen, and an adviser from the department will be assigned for their counseling. It is not necessary that all freshmen students select their curriculum until the end of the first year. Those who are in doubt will be assigned a special adviser to assist them in exploring the opportunities in the several fields of agriculture and in guiding them in the planning of appropriate courses of study for the freshman year. When they choose a curriculum, an adviser will be assigned from that department.

Students with special interest in science, business, or production technology should consult the adviser about selection of appropriate electives. A foundation for advanced work in the major field of study may be established in any curriculum if appropriate electives are included; also, courses may be elected in any of the curricula leading to the degree of Bachelor of Science in Agriculture. Preparation for employment with the Agricultural Extension Service. For this purpose, both the major-curriculum adviser and the agricultural-extension adviser should be consulted.

A very careful choice of electives enables a student with an above-average academic record to complete a double major by satisfying all the requirements in each curriculum. For this purpose, the advisers of each course should be consulted, the Dean of the College should be informed, and each adviser should maintain a complete record of the student's progress.

Students who transfer to the College of Agriculture from another institution or from another college with The University of Tennessee, should consult the Dean if in doubt as to the curriculum they wish to follow, and for assignment to an appropriate adviser. Requests for substitutions or special exams should be submitted for consideration during the first quarter of study in the selected curriculum.

Basic Curriculum for Agriculture

All students working for a degree of Bachelor of Science in Agriculture will include in their course of study the following minimum requirements. The sequence and the selection of courses not specified will be guided by the adviser.

Hours Credit

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1110: Introduction to Social Sciences</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture 1120: Introduction to Agricultural Engineering</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture 1140: Plant Science for Agriculture</td>
<td>4</td>
</tr>
<tr>
<td>Agriculture 1150: Food Technology and Science for Agriculture</td>
<td>4</td>
</tr>
<tr>
<td>Agricultural Science (courses listed in department curricula)</td>
<td>26</td>
</tr>
<tr>
<td>English and Communications (English 1510-20, Speech 2311, and elective 6 hours—literature or communications)</td>
<td>18</td>
</tr>
<tr>
<td>*Mathematics 1540-50-60, (general mathematics)</td>
<td>12</td>
</tr>
<tr>
<td>Biological Science, (biology, microbiology, or zoology)</td>
<td>12</td>
</tr>
<tr>
<td>*Physical Science, (Chemistry 1110-20-30-40, or Physics or geology)</td>
<td>16</td>
</tr>
<tr>
<td>Social Science and Humanities, (Economics 2110-20 and electives, 12 hours—not more than 3 areas)</td>
<td>18</td>
</tr>
<tr>
<td>Other Courses or Elective Hours Specified by Departments</td>
<td>78</td>
</tr>
<tr>
<td>TOTAL</td>
<td>198</td>
</tr>
</tbody>
</table>

*Equivalent honors course.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
</table>

Other courses serve as a strong motivation for study in the physical, biological, and social sciences, and are prerequisite to advanced courses in technical agriculture.

An Honors Seminar is offered as a challenge to exceptional students who desire to explore and gain breadth some special topic of unusual significance to agriculture. A team of faculty members shares in this seminar as participants and resource people. The students gain experience and are encouraged to assume responsibilities not available in formally organized courses. Association with students and faculty from all phases of agriculture in the study of a common problem provides an unusual challenge.

Course Load

Students desiring to take more than 19 hours per quarter must have the approval of the Dean of the College.

Agricultural Biology

Adviser: Professor Southard

No undergraduate curriculum exists in agricultural biology, but a program leading to the Master of Science degree with a major in agricultural biology is available (see Graduate Catalog). Courses in economic entomology, plant pathology, soil microorganisms, and plant parasitic nematodes are available to agricultural students. The department curriculum is comprised of two major disciplines: Economic Entomology and Plant Pathology. The primary objective of offering a major at the graduate level is to provide training in these disciplines which deal with the natural hazards that are the major causes of losses in agricultural production. The training gives such a graduate the foundation necessary for coping with the myriad insect and plant disease problems that constantly threaten Tennessee's dynamic agriculture.

Agricultural Economics and Rural Sociology

Agricultural Business Curriculum

Advisers: Professor Martin, Associate Professor Brooker, Mundy, Snell, and Tewena.

This curriculum is designed to prepare students for employment in the rapidly expanding field of agricultural business.

Recognition is given to the desire of many college graduates to continue to work with agriculture through many private and public services where major emphasis is in areas other than farm production. This program emphasizes particularly those capacities needed for the management phases of agricultural business. Course offerings in the College of Business Administration have been used freely in this curriculum.

Preparation is given for such work in crops, livestock and poultry marketing, fertilizer and feed businesses, cooperative business management, agricultural credit agencies, farm real estate and appraisal services, agricultural representatives with banks, public and private market analysts, agricultural journalism, and farm information services utilizing mass communications.
Freshman  

Agriculture 1110-20-30-40-50  .  20
English 1510-20  .  8
Mathematics 1540-50-60  .  12
Biological Science Electives  .  8

Sophomore

Chemistry 1110-20-30 or 1510-20-30 and 4 hours geology or physics  .  16
Economics 2110-20-30  .  8
Biological Science Elective  .  4
English Elective  .  4
Nondepartmental Social Science and Humanities Electives  .  12
Electives  .  9

Sophomore

Chemistry 1110-20-30 or 1510-20-30 and 4 hours geology or physics  .  16
Economics 2110-20-30  .  8
Biological Science Elective  .  4
English Elective  .  4
Nondepartmental Social Science and Humanities Electives  .  12
Electives  .  9

Junior

Agricultural Economics Electives  .  6
Rural Sociology Elective  .  3
Speech 2311  .  4
Finance 3110  .  3
Statistics 2100, 3220 and 6 Electives  .  8
Economics 3110-20  .  6
Nondepartmental Agricultural Electives  .  6
Electives  .  8

Senior

Agricultural Economics and Rural Sociology Electives  .  14
Economics Elective  .  3
Speech 3021 or Communications Elective  .  4 or 3
Nondepartmental Agricultural Electives  .  6
Electives  .  21 or 24

TOTAL: 198 hours

Or equivalent honors courses.

AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY CURRICULUM

Advisers: Professor Wiegard and Associate Professors Craig and Todd

This curriculum is designed to provide students with training in the social sciences as well as in the biological and physical sciences and technical agriculture. Recognition is given to the desire of many college graduates to work in agriculture where the major emphasis is in farm production and related areas. Students are prepared for positions such as farm managers, county agricultural agents, managers of farm supply and purchasing firms, agricultural journalism and farm loan agents. This curriculum also provides the necessary background for graduate work in agricultural economics.

Freshman

Agriculture 1110-20-30-40-50  .  20
English 1510-20  .  8
Mathematics 1540-50-60  .  12
Biological Science Electives  .  8

Sophomore

Chemistry 1110-20-30 or 1510-20-30 and 4 hours geology or physics  .  16
Economics 2110-20-30  .  8
Biological Science Elective  .  4
English Elective  .  4
Nondepartmental Social Science and Humanities Electives  .  12
Electives  .  9

Junior

Agricultural Economics Electives  .  6
Rural Sociology Elective  .  3
Speech 2311  .  4
Finance 3110  .  3
Statistics 2100, 3220 and 6 Electives  .  8
Economics 3110-20  .  6
Nondepartmental Agricultural Electives  .  6
Electives  .  8

Senior

Agricultural Economics and Rural Sociology Electives  .  14
Economics Elective  .  3
Speech 3021 or Communications Elective  .  4 or 3
Nondepartmental Agricultural Electives  .  6
Electives  .  21 or 24

TOTAL: 198 hours

Or equivalent honors courses.

AGRICULTURAL ENGINEERING CURRICULUM

Advisers: Professors Lynett and Sewell

The College of Agriculture, with the cooperation of the College of Engineering, offers a four-year curriculum leading to the degree of Bachelor of Science in Agricultural Engineering. The curriculum is fully accredited by the Engineers' Council for Professional Development, Industry, government agencies, research and testing organizations, and foreign service offer employment opportunities to agricultural engineers.

The minimum requirements for admission include two units of algebra, one unit in geometry, and one-half unit in trigonometry. Students may remove deficiencies by registering for special classes during the freshman year.

The curriculum gives training in the fundamentals of engineering applied to problems of agriculture. In the senior year, the comprehensive design of systems and their components is emphasized.

Graduates may pursue careers in design, analysis, or development in the following specialties: agricultural power and machinery; agricultural structures and environment; electric power and processing; soil and water conservation engineering; food engineering. The curriculum provides for elective courses which can be taken in the student's area of interest. Students should check with their advisers each quarter regarding the selection of courses.

Students majoring in agricultural engineering are eligible to participate in the Engineering Cooperative Scholarship program, Engineers' Day program, and other student activities in the College of Engineering. They are also eligible for selection into Tau Beta Pi and Alpha Zeta. Agricultural engineering majors interested in the Cooperative Engineering Scholarship program should consult with the head of the Department of Agricultural Engineering.

Agricultural Education

Advisers: Professor Wiegard and Associate Professors Craig and Todd

The curriculum in agricultural education is planned in cooperation with the College of Education. All agricultural education courses are offered in the College of Education. This curriculum is designed to prepare students for entering professional agricultural education service. Graduates are qualified to teach vocational agriculture. The curriculum also provides training for those who wish to enter farming, industry and governmental services associated with agriculture, and other occupations.

The senior courses in agricultural education are taught at selected off-campus centers. These courses are scheduled concurrently each quarter during the regular school year.

Students should file applications for student teaching in the agricultural education department at least two quarters prior to the quarter in which the student teaching is desired.

Freshman

Agriculture 1110-20-30-40-50  .  20
Introductory Biological Sciences  .  12
Mathematics 1540-50-60  .  12

Sophomore

Agriculture 1150  .  4
Agricultural Biology 2310  .  4
Chemistry 1510-20-30  .  12
Economics 2110-20  .  8
Psychology 2500, and Education Psychology 3110 or equivalent  .  4
Microbiology 2100  .  4
Physical Education or Health Electives  .  3
### Agricultural Mechanization Curriculum

Advisers: Professors Luttrell and Shelton

The agricultural mechanization curriculum is administered by the Department of Agricultural Engineering and leads to the degree of Bachelor of Science in Agriculture. The curriculum prepares students to apply principles, techniques, and systems of engineering, agricultural science and business to the broad industry of agriculture.

Agricultural mechanization courses encompass power and machinery, electrification, and processing, structures and environment, and soil and water conservation. By selecting either the Production and Processing Option or the Business and Industry Option, students, with assistance from their advisor, may structure their program to obtain either a broad or a highly specialized education.

Graduates are employed by industry, government and educational institutions generally in the areas of management, promotion, sales and training related to agricultural products, materials and services.

#### Freshman Hours Credit

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Engineering 1130</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Basic Technology 110-20-30</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Basic Engineering 1410</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Math 1840-50-60</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

#### Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1130-40</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Engineering Science and Mechanization 3311</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>English or Communications Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Graphics 1310-20-30</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Math 2840-50-60</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Physics 2310-20-30</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology 1210-20 or 3110</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Engineering Sci. and Mechanics 3120</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Engineering Sci. and Mechanics 3320</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Engineering Sci. and Mechanics 3310 or 3320</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Civil Eng. 3710</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Computer Science 3150</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Mechanical Engineering 3311, 3510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Plant and Soil Science 2130</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Humanities-Social Science Elective</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

#### Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting 2110</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Agricultural Biology 3210</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Agricultural Mechanization 3110</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Agricultural Mechanization 3210</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Agricultural Mechanization 3510 or 3560</td>
<td>4 or 3</td>
<td></td>
</tr>
<tr>
<td>Animal Science 2810</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Microbiology 2101</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Computer Science 4140</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Plant and Soil Science 3220</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Humanities-Social Science Electives</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Electives in Option</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

#### Senior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Economics 3610</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Agricultural Engineering Elective Group</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Agricultural Engineering 4120-30</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Electrical Engineering 3030 or 3130</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Humanities-Social Science Electives</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Technical Electives</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL: 198 hours**

*Or equivalent honors course.

*Students with less than 28 ACT math score must take Math 1500 prior to 1840-50-60.

*Agricultural Engineering elective group any two of Agricultural Engineering 4610, 4630, 4640.

*Humanities-Social Science electives from such fields as history, economics, government, literature, sociology, psychology, or fine arts (not more than three areas).

*The selection of technical electives must have approval of students advisor and the department head prior to registration in the course.

### Agricultural Extension Education

Advisers: Professor Dotson and Associate Professor Carter

No formal undergraduate curriculum is offered in agricultural extension education, but undergraduate courses are available as electives in each formal curriculum. Courses are designed to: (1) develop in prospective extension workers and other interested students an understanding of the functions, responsibilities, and techniques of the Cooperative Agricultural Extension Service; and (2) provide prospective extension workers with practical extension work experience in selected training courses. Graduate majors and minors are offered in agricultural extension education. Graduate courses are designed to develop in present extension workers and other interested students those competencies needed for improving the effectiveness of their work. Professor Dotson will give guidance for desired emphasis in agricultural extension education.

### Animal Science

Advisers: Professors Johnson, Blitter, Chamberlain, McLaren, Merriman, Montgomery, Murphere, Richardson, Shirley, Shrode, Swanson; Associate Professors Barth, Lidvall, and Assistant Professors Corrck, Hitchcock, Holloway, Masinupp and Smalling.

This curriculum is designed to prepare students for leadership careers in livestock and in related industries. Swine, poultry, sheep, dairy and beef cattle production and management may be involved, providing the opportunity for special or additional training in the dynamic livestock and husbandry technology (production). Through course selection, the student, therefore, may prepare for general or livestock farming, management, business, or science or elect the pre-veterinary courses preparatory for specialization. Elective selection permits special training for work with feed companies, meat animal, milk, egg or poultry production, managerial or marketing groups, other educational agencies, supply and equipment cooperatives, agricultural extension service, agricultural communication, public relations, and various organizations associated with agriculture.

Students have the opportunity, through course selection, to procure the equivalent of double majors in animal science with vocational education, plant and soil science, agricultural economics, or other available departments.

#### Freshman Hours Credit

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1110, 1130, 1140</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Biology 1210, 1230</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Chemistry 1110, 1120, or 1510-20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Mathematics 1540-50-60 or 1840-50-60</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

#### Food Technology and Science 3020

- Food Technology and Science 2840
- Food Technology and Science 4720
- Forestry 2610
- Forestry 3320
- Plant and Soil Science 3110
- Plant and Soil Science 3510
- Plant and Soil Science 3520
- Ornamental Horticulture 3010
- Ornamental Horticulture 3020

### Agricultural Extension Education
Sophomore  

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1120, 1150</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Animal Science 2810</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1Chemistry 1130 or 1530, and 3211-19 or 2230, or Nutrition 3310</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Economics 2110-20</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Microbiology 2010</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Plant and Soil Science 2130</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Physics Elective</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Speech 2311 and Communications Elective</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Junior  

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-Animal Science Agricultural Electives</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Animal Science (Core required: Animal Science 3210, 3220, 3320, 3330, 3410, 3420, 3510)</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Directed Electives - Evaluation</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Communications Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Humanities-Social Science Electives</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL: 198 hours

Electives allow students to select an area for specialization. Those interested in production would select additional courses in agriculture; in business administration, in economics, agricultural economics, finance and accounting; in research in chemistry, zoology, physics and statistics, etc. Electives should be chosen with career objectives in mind and in consultation with the adviser.

PRE-VETERINARY MEDICINE CURRICULUM  

Advisors: Professors Merriman, Bleiler, Chamberlain, McLean, Montgomery, Murphee, Richardson, Shirley, Shrode, Associate Professors Barth, Lidvall, Assistant Professors Comrie, Hitchcock, Holloway, Masincup, Smalling

This program is designed to guide the student in meeting the admissions requirements of The University of Tennessee College of Veterinary Medicine. The completion of specific subject matter requirements and the attainment of a satisfactory grade point average comprise the minimum requirements for entrance into the College of Veterinary Medicine. However, each year the number of available spaces. Therefore, meeting or surpassing the minimum requirement does not assure acceptance by the Veterinary College. Therefore, each pre-veterinary medical student should, early in the college career, elect a possible alternative career choice. The admission requirements listed below are those required by The University of Tennessee College of Veterinary Medicine. Their completion will generally fulfill the requirements for other veterinary colleges. However, students intending to apply to schools other than The University of Tennessee should check the requirements of those specific schools. Students intending to apply to The University of Tennessee College of Veterinary Medicine must complete a minimum of 120 hours. Students must complete their pre-veterinary requirements by the end of the spring quarter of the year in which they are applying. It is strongly recommended that each interested student plan to pursue at least a three-year pre-veterinary program. Inquiries concerning possible course substitutions and the combining of the pre-veterinary program with a degree program should be directed to the department's pre-veterinary adviser. It is possible for students who are accepted into the College of Veterinary Medicine at the end of their third year to receive a B.S. in Agriculture with a major in animal science upon successful completion of the first year in the College of Veterinary Medicine. See the College of Veterinary Medicine for additional information.

A suggested schedule for the Pre-Veterinary Medicine—Animal Science student is given below which will 1) allow for the completion of the above pre-veterinary requirements by the end of the third year and 2) allow the student to make normal progress toward completing the requirements for a degree in agriculture with a major in animal science. It is strongly recommended that the student carry a normal load of at least 16 to 18 hours per quarter.

First year  

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1510</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Mathematics 1540, 1550, 1560</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Biology 1210-20-30</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Agriculture 1130</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Humanities electives</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL: 52

Second year  

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 3211-21-31</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Chemistry 3219-29-39</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Physics 2210-20-30</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Agriculture 1110</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Economics 2110</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Animal Science 3410, 2810, 3320 and 3330</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Humanities electives</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL: 51

Third year  

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biochemistry 4110-20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Microbiology 2610</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Economics 2120</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Social Science electives</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Humanities electives</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Animal Science electives</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL: 52

1Students with a strong math background may omit Math 1540 and start with 1550 or elect to take the 1840-50-50 series.

A recommended elective for students with limited or no practical animal experience and required for those attempting to obtain the B.S. in Agriculture with a major in animal science in both the regular program and for those accepted to U.T. College of Veterinary Medicine after 3 years who wish to obtain the B.S. in Agriculture with a major in animal science after completion of the first year in the College of Veterinary Medicine (see below).

1It is recommended that the student include AS 3420, one 3000 level evaluation course and one management course.

For the student accepted at the end of the third year of pre-veterinary medicine and desiring to receive a B.S. in Agriculture with a major in animal science upon successful completion of the first year in the University of Tennessee College of Veterinary Medicine, the following are required: Agriculture 1150 or equivalent food technology and science course, Plant and Soil Science 2130, other agriculture outside of animal science 6 hrs. (suggested Agricultural Mechanization 4160, Food Technology and Science 3840, Agricultural Biology 3210, Plant and Soil Science 3140).

Students wanting to complete pre-vet requirements, but wishing to major in a department other than animal science, should consult with the appropriate departmental advisor for a proper selection of electives.

ANIMAL SCIENCE CURRICULUM WITH A PRE-VET OPTION  

This program is designed for students accepted by the U.T. College of Veterinary Medicine after the third year who wish to obtain a B.S. in Agriculture with a major in animal science upon completion of the first year in the College of Veterinary Medicine.

The student will need to complete the requirements as established by the College of Veterinary Medicine. In addition, the student will need to complete the following courses in the College of Agriculture AG 1110 or equivalent AG Econ. course; AG 1150 or equivalent FT & S course; AS 2810, 3420, one 3000 evaluation course, and one 4-hour management course; P & S 2910, agriculture other than AS, 8 hours. In addition, the following general requirements must be met in order to meet certain rules of UTK and the College of Agriculture in granting degrees: 1. The last 45 hours of the three-year program must be taken at UTK. 2. At least 18 hours of upper division technical agriculture must be taken at UTK. 3. The student must complete the first year in the U.T. College of Veterinary Medicine and with the substitution of appropriate courses from the first year and the completion of a minimum of 198 hours will be granted a B.S. in Agriculture with a major in animal science. It is the student's responsibility to complete the above requirements and to initiate the request for the degree.
Food Technology and Science
Advisers: Professors Miles and Overcast. Associate Professors Collins and Melton.

Food technology and science is the application of the sciences and engineering to the manufacture, preservation, storage, transportation, and consumer use of food products. Processing of raw food materials into consumer products by canning, freezing, dehydrating, fermenting, preserving, etc., is taught with emphasis on basic principles rather than on specific commodity procedures. Therefore, young men and women who plan to enter food technology must have an interest in the sciences, particularly chemistry, biology, microbiology, and physics.

This curriculum is designed to prepare students for a professional career in positions in the food industry such as food microbiologist, food chemist, quality evaluation and control supervisor, plant foreman and manager, packing specialist, ingredients specialist, etc. The Model Curriculum of the Institute of Food Technologists was used as a guide in developing this curriculum. A special problem course provides opportunity for practical training in food processing plants and laboratories or federal and state laboratories.

**Freshman**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1110-30-40-50</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Mathematics 1540-50-60</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Physics 1210-20</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Social Science Elective</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1120</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Chemistry 1110-20-30 or 1510-20-30</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Economics 2110-20</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Food Technology and Science 2110-20</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Microbiology 2610</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Communications or English Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Social Science Elective</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

**Junior**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Mechanization 3510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Chemistry 2230 or Nutrition 3310, Nutrition 3220-30-39</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Food Technology and Science 3210</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Food Technology and Science 4210</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Microbiology 3610</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Plant and Soil Science 3610</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Communications or English Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Social Science Elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td><em>Electives</em></td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

**Senior**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Technology and Science 4010</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Food Technology and Science 4110-20, 4310, 4810, 4920</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Food Science 4010</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Nutrition 3410</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td><em>Electives</em></td>
<td></td>
<td>22</td>
</tr>
</tbody>
</table>

**FOREST RESOURCE MANAGEMENT CURRICULUM**

<table>
<thead>
<tr>
<th>Major</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botany 1110-20 or Biology 1210-20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Forestry 1620</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Mathematics 1540-50-60</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Physics 1210-20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><em>Electives</em></td>
<td></td>
<td>3-4</td>
</tr>
</tbody>
</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 1510-20-30</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Computer Science 1410</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Economics 2110-20-30</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Forestry 3020-40-50</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Plant and Soil Science 3120</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td><em>Electives</em></td>
<td></td>
<td>9-12</td>
</tr>
</tbody>
</table>

**Junior**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting 2110</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Agricultural Biology 3130</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Agricultural Mechanization 2140, 3140</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Forestry 3110-20, 3220, 3320</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Forestry 4002-03-04-06</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td><em>Electives</em></td>
<td></td>
<td>9-12</td>
</tr>
</tbody>
</table>

**Senior**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Biology 3210</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Forestry 3120</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Forestry 4210-20-30, 4320, 3240</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td><em>Electives</em></td>
<td></td>
<td>20-27</td>
</tr>
</tbody>
</table>

**FOREST RECREATION OPTION**

The Forest Recreation Option provides students with opportunities to obtain an education in preparation for professional positions in the planning, development, interpretation, and management of private and public forested lands for recreational purposes. Students are also exposed to the basic philosophy and principles associated with leisure time and its use, and the relationship of forest resources to the constructive utilization of leisure time.

**Freshman**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botany 1110-20 or Biology 1210-20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Forestry 1620</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Mathematics 1540-50-60</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Physics 1210-20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><em>Electives</em></td>
<td></td>
<td>4-6</td>
</tr>
</tbody>
</table>
Sophomore  
<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Chemistry 1510-20</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>*Computer Science 1410</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Economics 2110-20</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Forestry 3040-50</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Sociology 1510-20</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>*Psychology 2130</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Plant and Soil Science 2130</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Journalism 2210</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Political Science 2020</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>*Electives</td>
<td></td>
<td>6-6</td>
</tr>
</tbody>
</table>

**Junior**  

Forestry 3020, 3110, 3230, 3240, 3320..................................................16  
Plant and Soil Science 3610........................................................................3  
Anthropology 2530...................................................................................... 3  
Recreation 3140........................................................................................... 3  
Journalism 3710.............................................................................................3  
*Electives .......................................................................................................21-24  

**Senior**  

Forestry 3210, 4210, 4230, 4240, 4320, 4330, 4440........................................20  
Planning 4100............................................................................................... 3  
Ornamental Horticulture and Landscape Design 4120, 4180.............................. 8  
*Electives .......................................................................................................18-21  

**Total:** 198 Hours

*Or equivalent honors courses.

*Twenty hours of electives to be taken from the following courses: Accounting 2110-20, 3510; Agricultural Biology 4030; Agricultural Economics 4330; Agricultural Mechanization 2130, 4290; Anthropology 2510-20, Astronomy 2110-20; Botany 3030, 3090, 4030, 4310; Business Law 4110; Civil Engineering 4290; Forestry 4220, 4440; Geology 1510-20, 2410; Ornamental Horticulture and Landscape Design 4210; Philosophy 2510-20; Plant and Soil Science 3320; Political Science 3565-66, 3630, 4940; Public Health 3210; Recreation 3100, 3200; Sociology 3910; Wildlife and Fisheries Science 4450, 4460, 4520; Zoology 3040, 4300; Computer Science 1510 is accepted in lieu of 1410 for those wishing to elect additional courses in this area.

**WILDLIFE AND FISHERIES SCIENCE**  

Wildlife and fisheries management is the science and art of maintaining populations of wild animals at levels consistent with the best interest of wild species themselves and of the American public. Management goals may be aesthetic, economic, or ecological. Success depends upon wildlife and fisheries biologists giving assistance in attaining the goals for whom they serve; scholarly application of scientific information and methods to these goals; ecological perspective; and execution of programs to maintain past successes, to prevent repetition of past failures, and to prepare for future needs.

Upon completion of the four year wildlife and fisheries science curriculum, the degree of Bachelor of Science in Wildlife and Fisheries Science is awarded.

**Freshman**  

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology 1210-20-30</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics 1540-50-60</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Forestry 1620</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Physics 1210</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>*Electives</td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>

**Sophomore**  

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Chemistry 1510-20-30</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Economics 2110-20</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Biology 3130</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Forestry 3040</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Plant and Soil Science 3610</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>*Animal Science 3210</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>*Computer Science 1410</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>*Electives</td>
<td></td>
<td>11</td>
</tr>
</tbody>
</table>

**Junior**  

Zoology 3660, 4240.................................................. 8  
Wildlife and Fisheries Science 3610........................................... 3  
Forestry 3110, 3320................................................... 7  
Plant and Soil Science 3110, 3320, 4130; Botany 4310; Forestry 4430, 4440; Physics 1220; Zoology 3040, 3090, 4030, 4300, 4670, 4720-29  
*Computer Science 1510 is accepted in lieu of 1410 for those wishing to elect additional courses in this area.

**Senior**  

Zoology 4220, 4660.................................................. 9  
Wildlife and Fisheries Science 4450, 4460...................................... 8  
Wildlife and Fisheries Science 4510, 4520...................................... 8  
Forestry 4210............................................................ 3  
*Electives ......................................................................................... 22

**Total:** 198 Hours

*Or equivalent honors courses.

**Ornamental Horticulture and Landscape Design**  

Adviser: Professor Williams  

Human needs go beyond food, clothing, and shelter. We require a degree of control over environment, especially immediate surroundings. Ornamental plants and their use are recognized as part of the environment, hence a curriculum in ornamental horticulture and landscape design. The four areas of study within this curriculum are: horticulture, nursery management, turfgrass management, and landscape design.

The area of horticulture includes the science of producing flowering plants in field and greenhouse and the art and science of using these plants for the benefit of humans. Opportunities are available as greenhouse managers, floral designers, retail salesmen, garden writers, research workers, and teachers.

Nursery management deals with the growing of trees, shrubs, and other ornamental plants for sale. Skills necessary to be a nurseryman include horticultural knowledge and a business sense. Students in this area are prepared to work in nurseries, garden centers, botanical gardens, and arboreta. They may find opportunities also in research, teaching, writing, sales, and landscape design.

Turfgrass management includes all aspects of growing and caring for turfgrass, whether it be golf greens or home lawns. The increasing number of golf courses and home lawns and the emphasis on better quality make new opportunities for turfgrass managers. Such opportunities include golf course superintendents, park and recreational turf managers, operation of a lawn maintenance business, producer and seller of sod, research, teaching, and sales.

Landscaping means modifying the outdoor environment to the greatest use, comfort, and enjoyment. It not only means the use of trees, shrubs, and other plant material to accomplish this goal, but it also means having an understanding of the requirements for working, recreation, and housing. Emphasis in the area of landscape design is on plant material and design courses. Opportunities in this area include landscape nurserymen, landscape maintenance, garden center operation, allied sales, highway landscaping, park development, research, teaching, and writing.

**Freshman**  

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1110-20-30-40-50</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Introductory Biological Sciences...........</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics 1540-50-60</td>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

**Sophomore**  

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Chemistry 1110-20-30 or 1510-20-30</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>*Economics 2110-20</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Physics 1210 or 2210 or Geology 1510.......</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>English or Communications Electives.........</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Social Sciences or Humanities Electives...</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Plant and Soil Science 3210</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Orn. Hort. and Landscape Design 3210.......</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Orn. Hort. and Landscape Design 3210.......</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

**Junior**  

Social Science or Humanities Electives........| 6     | 3      |
| Chemistry 2230 or 3211-19 or Nutrition 3310 | 4     | 2      |
| Agricultural Biology 3130, 3210................| 6     | 4      |
| Plant and Soil Science 3110........................| 3     | 2      |
| Orn. Hort. and Landscape Design 3210........| 3     | 2      |
| Orn. Hort. and Landscape Design 3210........| 3     | 2      |
| Orn. Hort. and Landscape Design 4120........| 4     | 2      |
| *Orn. Hort. and Landscape Design Electives...| 7     | 4      |
| *Electives ..................................................3

**Total:** 198 Hours

*Or equivalent honors courses.

*Students should consult with departmental adviser for suggested electives and suggested course of study.

*Or equivalent physiology course.

*Mathematics 1540-50-60 may be substituted for students with high mathematics scores.
Plant and Soil Science

Advisers: Professors Seatz, Skold and Swingle; Associate Professors Coffey, Reynolds and Smith; Assistant Professor Lessman.

Plant and soil science deals with field and vegetable crops and soils. Plant science includes crop breeding and genetics for crop improvement and the introduction of new varieties; crop management for high yields of high quality products; and weed control for efficient crop production. Soil science includes studies in soil formation and classification for a better understanding of our soil resources; soil management for optimum crop production and conservation; soil fertility for utilizing fertilizers efficiently; and basic studies in chemistry, physics, and biology as they apply to the soil and to a better understanding of its properties and proper use.

The plant and soil scientist must have a knowledge of the basic physical and biological sciences and, in addition, be trained in communication skills. The scientist may be broadly trained or may specialize in a more specific phase of the subject. Regardless of interest, many good jobs are available for the well-trained plant and soil scientist.

Employment opportunities differ depending upon the individual's type of training and interest. For the person who is scientifically inclined, positions are available in research with both public and private agencies. For those who wish to apply their knowledge to the solution of practical problems, positions are available with the Agricultural Extension Service as extension agents or as specialists, with the Soil Conservation Service, Forest Service, Farmers Home Administration, Production Credit Association, and other public agencies. Many plant and soil scientists are employed in private industry as technical specialists, supervisors and salesmen. Banks and other financial institutions employ plant and soil scientists as appraisers and farm managers. Others may farm on their own, manage farms for others, or work in foreign agricultural programs. Certainly, plant and soil science is basic to all agriculture, and people trained in this important field will find many opportunities to serve in modern agriculture.

Each student selecting this major must complete the basic curriculum for agriculture and fulfill the major group requirements. The curriculum in plant and soil science showing the manner in which the required courses may be taken by years is as follows:

**Freshman**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture 1110-30-40-50</td>
<td>16</td>
</tr>
<tr>
<td>Lower Division Biological Sciences</td>
<td>12</td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
</tr>
<tr>
<td>Mathematics 1540-50-60</td>
<td>12</td>
</tr>
</tbody>
</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 1110-20-30 or 1510-20-30</td>
<td>12</td>
</tr>
<tr>
<td>Economics 2110-20</td>
<td>6</td>
</tr>
<tr>
<td>Agriculture 1120</td>
<td>4</td>
</tr>
<tr>
<td>Plant and Soil Science 2130</td>
<td>4</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
</tr>
<tr>
<td>Physics 1210 or 2210</td>
<td>4</td>
</tr>
<tr>
<td>English and Communications Electives</td>
<td>6</td>
</tr>
<tr>
<td>Social Science or Humanities Electives</td>
<td>9</td>
</tr>
</tbody>
</table>

**Junior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Science or Humanities Electives</td>
<td>3</td>
</tr>
<tr>
<td>Biological or Physical Science Electives</td>
<td>12</td>
</tr>
<tr>
<td>Agricultural Biology 3130 or 3210</td>
<td>4</td>
</tr>
<tr>
<td>or 4010</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 2230 or 3211-19 or Nutrition 3210</td>
<td>4</td>
</tr>
<tr>
<td>Animal Science 3210</td>
<td>3</td>
</tr>
<tr>
<td>Plant and Soil Science 3020 or 3040</td>
<td>3</td>
</tr>
<tr>
<td>Plant and Soil Science Electives</td>
<td>12</td>
</tr>
<tr>
<td>Nondepartmental Agric. Electives</td>
<td>6</td>
</tr>
<tr>
<td>Electives</td>
<td>4</td>
</tr>
</tbody>
</table>

**Senior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botany 3210</td>
<td>4</td>
</tr>
<tr>
<td>Plant and Soil Science 4910</td>
<td>1</td>
</tr>
<tr>
<td>Plant and Soil Science Electives</td>
<td>10</td>
</tr>
<tr>
<td>Electives</td>
<td>35</td>
</tr>
</tbody>
</table>

**TOTAL: 198 Hours**

* Or equivalent honors courses.

Agricultural 1840-50-60 is suggested for students with high mathematics scores.

A student should consult with departmental adviser for suggested courses.

Only courses taught outside the College of Agriculture will fulfill this requirement.

Plant and soil science electives must include at least three courses from Group A and three from Group B listed below. Plant and Soil Science 3610 can be counted in only one of the groups.

**GROUP A**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant and Soil Science 3110, 3220, 3610, 4110, 4230, 4320</td>
<td>4</td>
</tr>
</tbody>
</table>

**GROUP B**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant and Soil Science 3120, 3140, 3160, 3180, 3510, 3520, 3610, 3710, 4120</td>
<td>4</td>
</tr>
</tbody>
</table>

In addition to the specific courses, students can specialize in areas of their interest by selecting courses from the following groups. These lists are suggestive only. The departmental adviser will guide the student according to the student's individual objective.

**Agriculture**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural Economics 4120, 4140, 4330</td>
<td>8</td>
</tr>
<tr>
<td>Agricultural Mechanization 3210, 4210</td>
<td>4</td>
</tr>
<tr>
<td>Animal Science 3410, 3510, 2810</td>
<td>8</td>
</tr>
<tr>
<td>Food Technology and Science 3840, Rural Sociology 3420</td>
<td>4</td>
</tr>
</tbody>
</table>

**Business**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting 2110-20, Business Law 4110-20-30</td>
<td>8</td>
</tr>
<tr>
<td>Economics 2130; Finance 3110; Industrial Management 3010; Marketing 3110-20; Office Administration 4310-20</td>
<td>4</td>
</tr>
</tbody>
</table>

**Science**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology 3110-20-30; Botany 3030, 4310</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 2140-49; 3211-21-31, 3219-29-39; Geology 1510-20, Physics 1220-30</td>
<td>4</td>
</tr>
</tbody>
</table>

**Credit for Cooperative Work**

A maximum of nine quarter hours credit may be earned by supervised employment on approved jobs. To receive credit, the student must receive the recommendation of the employer, must present a satisfactory written report, and must receive a passing grade from the University professor in charge. Employment periods shall be not less than twelve weeks. At least one quarter must be spent in study on the campus between periods of employment. Prerequisites: Junior classification, with grade average of 2.2 or above, and permission of the department head and the Dean of the College of Agriculture to register. Three hours credit, each quarter.

**Short Courses and Special Events**

Practical short courses in agriculture are offered for those who desire special training in certain fields. Some of these short courses are held on the Knoxville campus, others at the Buford Ellington Club Training Center, Milan, Tennessee or at appropriate research stations. The Resident Instruction, Research, and Extension staffs join in teaching these special courses annually and others are offered to meet immediate needs for special instruction. They are service courses and do not carry college credit.

In-service training is provided special groups, such as the teachers of vocational agriculture, through short-term courses which are offered at convenient locations in the state.

A special occasion known as Varsity Visit is held during the year. Delegates from all Future Farmers of America chapters are invited to spend a day on the agricultural campus with their advisers. Approximately 500 attend and inspect each department of the College.

**Departments of Instruction**

Numbers in parentheses following the course titles indicate quarter hours credit offered.

**Interdepartmental Offerings**

**Agriculture (028)**

1110 Introduction to Social Sciences for Agriculture (4) Social sciences as they relate to agriculture—agriculture in the economy; tools of social science analysis applied to agricultural problems; agriculture, its development, relation to man, industry and government. 4 hrs and 1 lab.

1120 Introduction to Agricultural Engineering (4) Agricultural power and machinery fundamentals, agricultural structures, soil and water conservation controls, and agricultural uses of electricity. 3 hrs and 1 lab.

1130 Animal Science for Agriculture (4) Animals in agriculture: Body systems and development, principles of inheritance, fundamentals of feeding, and function of farm animals. Animal sanitation, animal products, and the relationship to public health. 3 hrs and 2 labs.

1140 Plant Science for Agriculture (4) Plant structure, physiology, heredity and environment in relation to growth, adaptation, and management of crops. 3 hrs and 2 labs.

1150 Food Technology and Science in Agriculture (4) Utilization, processing, and distribution of food products. 3 hrs and 1 lab.

4018 Honors: Seminar (3) Selected topics. Offered alternate years. Open to juniors and seniors by invitation.

4110 Agricultural Industry Field Seminar (3) A travel study of the agricultural industry involving agricultural production, processing, marketing, and services, and their interrelationships. Written report required. Prereq: Junior standing and permission of instructor.
Agricultural Economics (047)

3120 Agricultural Prices (3) Factors determining prices of farm products. Effects on price of varying degrees of competition and scarcity. Sources of price information on prices and related market data. Uses of price information and techniques of analysis in determining outlook for farm prices. Prereq: Agriculture 1110 and Economics 2120.

3320 Marketing Farm Products (3) American marketing system; alternative market structures, functions of marketing system, commodity marketing programs. Cures of market problems and possibilities for improvement. Prereq: Agriculture 1110 and Economics 2120.

3410 Farm Business Analysis (3) Techniques of analyzing a farm business. Factors affecting farm income and efficiency. Resource acquisition, cash flow, risk, tax, and tenure consideration. Practice in decision making on simulated farm. Prereq: Agriculture 1110 and Economics 2120. 2 hrs and 1 lab.

3510 Commodity Futures Markets (3) Futures market as an instrument in marketing of primary industry products; process of passing to others the risk of adverse price change; price analysis from two view points: supply-demand and history (fundamentalist and chartist). Prereq: Junior standing. 3 hrs.

3710 Consumer Demand for Agricultural Products (3) Economic principles, practices and budgeting techniques to use in purchasing of goods and services. Evaluation of advertising and other related information. Prereq: Agriculture 1110 and Economics 2120.

4120 Farm Management (3) Principles of farm organization and operation; allocating land, labor, and capital to meet changing situations; tenure arrangements and use of credit; risks; measures of success. Use and analysis of records; exercises, planning farms. Field trips arranged. Prereq: Agriculture 1110 and Economics 2120. 2 hrs and 1 lab.

4140 Introduction to Agricultural Production Economics (3) Resource allocation, product selection, scale of operation of agricultural firms; aggregate effects of decisions made by individual agricultural firms. Prereq: Agriculture 1110 and Economics 2120, and senior standing.

4210 Problems in Agricultural Economics (3) Supervised laboratory course in methods of collecting and analyzing economic information and in writing a report. Prereq: Agriculture 1110 and Economics 2120. May be repeated to a maximum of 9 hours credit.

4240 World Agriculture and Trade (3) Economic bases of world agricultural production and trade: resource location, land tenure systems, international trade and commercial policy. Prereq: Agriculture 1110 and Economics 2120, or consent of instructor.

4250 Agricultural and Rural Planning (3) Decision-making concepts applied to design and implementation of local action programs. Case examples from the U.S. and other countries. Prereq: Agriculture 1110 and Economics 2120, or consent of instructor.

4310 Agricultural Finance (3) Nature and source of capital; credit problems of farmers; kinds and sources of farm credit; Agricultural insurance and taxation. Prereq: Agriculture 1110 and Economics 2120.

4320 Agricultural Policies (3) Meaning of agricultural policy in democratic society; relationship of farm groups to public policy; problems in forming public policy; types of agricultural policy and appraisal of results; current problems of reforms. Prereq: Agriculture 1110 and Economics 2120.

4330 Land Economics (3) Problems and policies of land use, conservation, development, taxation, and tenure; population growth and demand for land; principles and theories of rent, property, value, and income. Prereq: Agriculture 1110 and Economics 2120.

4610 Management of Farm Supply and Marketing Firms (3) Operations of firms selling farm supplies and merchandising agricultural products. Emphasis on accounting data and the economic theories for decision making. Prereq: Agriculture 1110 and Economics 2120.


4710 Agricultural Law (4) Survey of law and application to the farmer, his family, and agricultural industry. Property, contracts, torts, drainage and water rights, landlord-tenant relationships, taxation and insurance, forms of business organization, estate planning, regulatory laws, and other selected topics.

GRADUATE

5000 Thesis

5010 Research Methods and Instrumentation in Plant Pathology and Entomology (3)

5210 Plant Parasitic Nematodes (4)

5220 Plant Disease Control (3)

5230 Field Crop and Vegetable Insects (3)

5240 Insect Pests of Man and Animal (3)

5260 Insect Pest Management (4)

5310 Special Problems in Plant Pathology or Economic Entomology (1-6)

5410 Seminar (1)

Agricultural Economics and Rural Sociology

Professors: J.A. Martin (Head), Ph.D. Minnesota; M.B. Badenhop, Ph.D. Purdue; D.W. Brown, Ph.D. Iowa State; C.L. Clagett, Ph.D. Wisconsin; Irving Dubov, Ph.D. California (Berkeley); L.H. Keller, Ph.D. Kentucky; F.O. Leuthold, Ph.D. Wisconsin; W.P. Ranney (Emeritus), Ph.D. Minnesota; T.J. Whately, Ph.D. Purdue.

Associate Professors: J.R. Brooker, Ph.D. Florida; C.M. Cuskaden, Ph.D. Michigan State; B.J. Deaton, Ph.D. Wisconsin; T.H. Klink, Ph.D. Kentucky; B.R. McMahan, Ph.D. Purdue; S.D. Mundy, Ph.D. Tennessee; B.H. Pentecost, J.D. Tennessee; C.B. Sappington, Ph.D. Illinois; J.G. Snell, Ph.D. Michigan State; B.J. Trevenal, Ph.D. Tennessee.

Assistant Professor: R.H. Orr, Ph.D. Illinois.

Instructional Assistant Professor: Distinguished Professor:
Agricultural Engineering

Profs.: H. Luttrell (Head), Ph.D. Iowa State; B. L. Bldsoe, Ph.D. Oklahoma State; J. J. Sewell, Ph.D. Missouri; C. D. K. Chen, Ph.D. State, P.E.; J. J. McDow (Dean of Admissions and Records), Ph.D. Michigan State, P.E.

Associate Professors: A. A. Hebert, Ph.D. North Carolina State, P.E.; C. H. Shetton, M.S. Virginia Polytechnic; L. R. Wilkinson, Ph.D. Tennessee, P.E.

Assistant Professors: D. G. Baxter, M.S. Missouri; F. D. Tompkins, Ph.D. Tennessee.

Agricultural Engineering (066)

1130 Introductory Agricultural Engineering (3) Basic principles, methods and equipment in agricultural engineering, 2 hrs and 1 lab. Prereq: Open only to freshman and sophomore students in agriculture.

3100 Seminar (1) Presentations, discussions, reports on research techniques. Prereq: Permission of department head.

3610 Soil and Water Conservation Engineering (4) Integration of hydrologic, agronomic and engineering principles into agricultural water and land management problems involving flooding and erosion control, drainage, irrigation, and water quality. Coreq: Plan and Soil Science 2130; Engr. Sci. and Mech. 3110, 3 hrs and 1 lab. Graduate credit for non-majors only.

3620 Structures for Production, Environmental Control of Waste Management Systems Analysis of loads and stresses; design of wood, steel and concrete members; structural and environmental requirements of livestock raising and crop production and storage; physiological requirements; heat loads; insulation; moisture relationships; ventilation and waste management. 3 hrs and 1 lab. Graduate credit for non-majors only.

3630 Processing and Material Handling Systems (4) Application of basic engineering sciences to process design and handling of agricultural products, physical properties, thermal processing, curing and drying. Coreq: Engr. Sci. and Mech. 3110; Coreq: Mech Engr. 3540; 3 hrs and 1 lab. Graduate credit for non-majors only.

3640 Power Units and Machinery (4) Components and operating characteristics of internal combustion engines and tractor systems; fundamental analysis of agricultural machinery system performance and cost analyses. Prereq: Engr. Sci. and Mech. 3100; Mech Engr. 3811, 3 hrs and 1 lab. Graduate credit for non-majors only.

4120-30 Seminar (1, 1) Presentations, discussions, reports. 4120—Professional development topics. 4130—Industry trip. Prereq: Permission of department head.

4220 Special Problems in Agricultural Engineering (3) Selection, analysis, solution, and report of research problem. May be repeated for maximum of nine hours credit when engaged in Cooperative Engineering or other approved industry work. Prereq: 3100 and permission of department head.

4230 Selected Topics in Agricultural Engineering (3) Development of new topics as required by current trends and problems in agricultural engineering.

4610 Design of Water Control and Waste Utilization Systems (3) Design of water control and waste utilization systems including earth dams, irrigation, drainage, land grading, hydraulic transport of wastes, and application of wastes on agricultural land. Prereq: 3610 or permission of instructor. 1 hr and 2 labs.

4620 Design of Structures for Production, Processing and Environmental Control (3) Functional planning and structural design of agricultural buildings; emphasis placed on complete design of structure or system; design to include functional, structural and environmental aspects. Prereq: 3620; 1 hr and 2 labs.

4630 Design of Processing and Materials Handling Systems (3) Development of systems and components for integrated agricultural processing of considering mass and energy balances, product characteristics, equipment specifications, storage, handling and economic merit. Prereq: 3630, 1 hr and 2 labs.

4640 Design of Agricultural Machinery (3) Functional requirements of agricultural machinery, Elements of machine component design, synthesis of mechanisms, mechanical and hydraulic drives. Team effort in completing machine design project. Prereq: 3640 or permission of instructor. 1 hr and 2 labs.

GRADUATE

5000 Thesis

5240 Environmental Control in Agricultural Structures (3)

5340 Hydrology of Agricultural and Forest Lands (3)

5440 Instrumentation in Agricultural Systems (3)

5540 Engineering Properties of Agricultural Materials and Products (3)

5640 Research Problems in Agricultural Engineering (3)

5710-20 Similitude in Design and Research (3, 3)

6000 Doctoral Research and Dissertation

6110 Seminar (1)

6310 Engineering Systems Analysis in Agriculture (3)

6610 Selected Topics in Agricultural Engineering (3)

Agricultural Mechanization (080)

2110 Agricultural Drawing and Mapping (3) Fundamentals of graphics and mapping, with emphasis on applications in agriculture and forestry. 1 hr and 2 labs.

2130 Agricultural Surveying (3) Measurement of horizontal distances and angles; differential and profile leveling; topographic surveying and mapping, area computation. Prereq: Math 1560 or permission of instructor. 1 hr and 2 labs.

2140 Forest Surveying (2) Instruments, methods, and computations used in determining distances, angles, elevations, and area related to forest management problems. Credit cannot be given for both 2130 and 2140. Prereq: Math 1560. 1 hr and 1 lab.

3100 Seminar (1) Presentations, discussions, reports on research techniques. Prereq: Permission of department head.

3110 Agricultural Mechanics (3) Organizing equip- ping, and managing school and farm shops; tech- niques, materials, and procedures in design and construction of shop projects; metal work and welding. 1 hr and 2 labs.

3140 Forest Surveying and Mapping (3) Use of low- precision methods and instruments including pac- ing, Abney level, topographic taped tape, hand com- pass, and staff compass. Field measurements, computations and layouts involving random and true lines, traverses, topographic mapping and forest roads. Prereq: 2140. Ten periods of six hours per period.

3210 Soil and Water Conservation Facilities (3) Leveling, topographic surveying; planning, construc- tion, operation, maintenance, and erosion control systems. Prereq: Math 1550. 2 hrs and 1 lab.

3220 Agricultural Structures (3) Functional planning and structural design, construction methods, properties of building materials, and cost estimation. Prereq: Math 1550. 2 hrs and 1 lab.

3510 Agricultural Utilities and Processing Equipment (4) Electrical equipment, controls; water systems, heating and refrigerating systems; waste disposal systems. Prereq: Agri. 1120: Physics 1220. 3 hrs and 1 lab.

3560 Electrical Systems in Agriculture (3) Electrical terms and fundamentals, distribution, wiring prac- tices, governing codes, controls and motors used in agricultural and residential facilities. Prereq: Physics 1220 or Agriculture 1120. 2 hrs and 1 lab.

4120-30 Seminar (1, 1) Presentations, discussions, reports. 4120—Professional development topics. 4130—Industry trip. Prereq: Permission of department head.

4150 Agricultural Waste Utilization and Disposal (3) Techniques, equipment, and structures for utilizing, treating, and disposing of agricultural wastes by land spreading, lagooning, and processing. Prereq: Senior standing. 2 hrs and 1 lab.

4170 Small Engines (3) Concepts and mechanics of small gasoline engines; selection, operation, adjustment, and repair of single cylinder engines. 2 hrs and 1 lab.

4180 Equipment and Techniques for Application of Agricultural Chemicals (3) Equipment for application of liquid, solid, and gaseous chemicals; system components; operational characteristics; safety considerations; calibration; selection and manage- ment; materials handling and disposal methods. 2 hrs and 1 lab.

4210 Agricultural Machinery and Tractors (4) Agricultural machinery and power units; adaptation to agricultural practices; field efficiencies, capacities, adjustment, and servicing. Prereq: Math 1550. 3 hrs and 1 lab.

4220 Special Problems in Agricultural Mechanization (3) Selection, analysis, solution, and report of research problem. May be repeated for maximum of nine hours credit when engaged in approved industry work. Prereq: 3100 and permission of department head.

4220 Forest Utilities and Roads (4) Electrical ser- vice and equipment, power sources, water supply, and sanitation systems emphasizing forest recrea- tion facilities. Planning, construction, and main- tenance of forest access roads, culverts, and timber bridges. Prereq: 2130 or 2140. 3 hrs and 1 lab.

GRADUATE

5000 Thesis

5110 Research Problems in Agricultural Mechanization (3)

5210 Electro-mechanical Systems in Agriculture (3)

5410 Agricultural Machinery System Analysis (3)

5610 Selected Topics in Agricultural Mechanization (3)

Agricultural Extension Education (075)

Professor: R. S. Dotson (Head), Ph.D. Pennsylvania State.

Associate Professor: C. E. Carter, Jr., Ph.D. Ohio State.

3110 Introduction to Agricultural Extension (3) His- tory, philosophy; organization; teaching methods; and relationships with other educational agencies.

4110-20 Field Studies (3, 3) Supervised work experi- ence with county extension agents in a designated county. For senior and graduate students. Prereq: 3110, and permission of instructor. Requires living off-campus for a specified time.

GRADUATE

5000 Thesis

5011-21 Special Problems in Lieu of Thesis (3, 3)

5100 Special Problems in Agricultural Extension (1- 6)

5210 Long-Range Extension Program Planning (3)

5220 Seminar (3)
5320 Evaluation in Programs of Agricultural Extension (3)
5310 History, Philosophy and Objectives (3)
5320 Volunteer Leadership in Agricultural Extension Programs (3)
5350 Supervision of Agricultural Extension Programs and Personnel (3)

Animal Science (113)

Professors: P.R. Johnson (Head), Ph.D. Ohio State; M.C. Bell, Ph.D. Oklahoma State; J.K. Blethen, Ph.D. Ohio State; C.G. Chamberlain, Ph.D. Iowa State; S.L. Hartig, Ph.D. Texas A&M; H.M. Jamison, Ph.D. Tennessee; J.B. McLaren, Ph.D. Auburn; J.M. Montgomery, Ph.D. Wisconsin; G.K. Merriman, Ph.D. Michigan State; E.R. Lidwell, M.S. Tennessee; M.J. Montgomery, Ph.D. Auburn; E.J. Stiles, Ph.D. Auburn; R.L. Tugwell, Ph.D. Kansas State; C.E. Wylie (Emeritus), A.M., Missouri.


In addition, academic expertise of staff members at CAR and Oak Ridge are used on appropriate occasion.

2610 Fundamentals of Meat Animal Evaluation (3)
Criteria for live animal and carcass evaluation; market classes and grades of beef, pork and lamb; methods for determining muscle and fat relationships in cattle, hog and sheep; 1 hr and 2 hrs.

2710 Introduction to Biometrical Aspects of Animal Science (3) Biometrical concepts for optimum comprehension of material presented in upper division animal science courses. Basic ideas in probability as introduction to concept of distributions. Expected values of variables as most probable values. Binomial and normal distributions and their prevalences in genetic material. Planning effective experiments. Association or relationship of variables. Assessment of validity of hypotheses. 2 hrs and 2 labs.

2810 Farm Animal Management Practices (3) Integration of management practices and skills into cattle, horse, sheep, poultry and swine enterprises. Practices and skills include dehorning, castrating, dressing, docking, foot care, shearing, age determination, identification; preparing for show and sale; vaccinating and immunizing; and controlling parasites. Facilities needed in livestock management including buildings, fences, corrals, equipment, space requirements and restraining devices. 2-3 hrs labs.

2820 Introduction to Light Horses (3) Scope and role of light horse industry; breeds—development, function and use; soundness; tack; introduction to management problems. May not be used by animal science majors to meet graduation requirements. 2 hrs and 1 lab.

3210 Anatomy and Physiology of Farm Animals (4) Skeleton and joints; skeletal muscles, blood and microcirculation, and nervous, cardiovascular, respiratory, digestive, renal and endocrine systems; demonstration of physiological phenomena. Pre- requisites: Biology 1210 or Agriculture 1130. 3 hrs and 1 lab.

3220 Physiology of Reproduction (3) Comparative anatomy and physiology of reproductive systems of horses and swine; fertilization, implantation, prenatal growth, parturition and initiation of lactation; endocrine regulation of reproductive phenomena. Prerequisite: 3210 or permission of instructor. 2 hrs and 1 lab. (Same as Zoology 3220.)

3310 Introduction to Animal Nutrition and Feeding (3) Nutrient utilization, function and requirements of farm and food animals; nutrient content and factors affecting feeding value; balancing rations for beef and dairy cattle, swine and poultry. Not available to students with credit in 3320. Prerequisite: Agriculture 1130, Chemistry 1130 or 1530. 2 hrs and 1 lab.

3320 Animal Nutrition (3) Properties, functions, utilization and deficiency symptoms of essential nutrients; nutritive value determinations and their uses. Prerequisite: Agriculture 1130 and one quarter of organic chemistry. 2 hrs and 1 lab.

3330 Feeds and Ration Formulation (3) Feedstuffs, additives, feeding standards, nutrient requirements and ration formulation for beef and dairy cattle, sheep, horses, swine, poultry and laboratory animals. Prerequisite: 3320. 2 hrs and 1 lab.

4310 Heredity in Animals (3) Basic chromosomal mechanism of heredity with emphasis on Mendelian principles and exceptions such as linkage and cytoplasmic inheritance. Introductions to biochemical basis of heredity and to quantitative inheritance. Illustrations of principles related to species familiar to agriculture students. Prerequisite: Agriculture 1130. 2 hrs and 1 lab.

4320 Principles of Animal Breeding (3) Genetic principles involved in breeding of economic species. Genetic basis of variation. Partitioning of variance according to various kinds of causative differences such as differences in genetic makeup and environment. Selection and consequences. Matings systems and effects on populations. Planning breeding programs. Prerequisite: 3410 or equivalent. 2 hrs and 1 lab.

4340 Breeds of Farm Animals (3) Study of evolution and formation of breeds; cattle, horses, poultry, sheep and swine. Breeding structure. History, development, characteristics and improvement programs of various breeds. Prospects for purebred industries and impact of crossbreeding programs. 2 hrs and 1 lab.

3510 Animal Hygiene and Sanitation (4) Parasitic, viral and bacterial organisms in farm animals; immunization; control and protection against disease; veterinary regulations and quarantine; herd health programs. Prerequisites: Microbiology 10, 3000 or 2610 for permission of instructor. 3 hrs and 1 lab.

3520 Avian Diseases (3) Major diseases; characteristics, prevention and treatment, management systems and practices for domestic birds, upland game birds and water fowl. 2 hrs and 1 lab.

3610 Meat Animal Selection (3) Evaluation, judging, classification and carcass grading in beef, swine and sheep for functional efficiency. Prerequisite: 2610. 1 hr and 2 labs.

3620 Dairy Cattle Judging and Classification (3) Comparative judging, oral reasons; type, classification programs. Economic value of classification ratings. 3 labs.

3630 Judging Poultry and Poultry Products (3) Grading of poultry and poultry products according to USDA standards; factors influencing quality. 1 hr and 2 labs.

3640 Horse Selection and Judging (3) Selection, judging, evaluation of soundness and scoring of working and pleasure horses for functional efficiency. Prerequisite: Permission of instructor. 1 hr and 2 labs.

3810 Nutrition and Management of Laboratory Animals (3) Principles of feeding, breeding and handling. Specific diets in nutrition investigations; specific species’ requirements, peculiarities and research for which animal may be used and the handling of laboratory animals. Prerequisite: Agriculture 1130 and permission of instructor. 2 hrs and 1 lab.

4110 Special Problems in Animal Science (1-4) Special research and/or special reports based on supervised independent study or review of literature dealing with subjects applicable to field of animal science; approved supervised work experiences in State-Federal laboratories or in private industry. May be repeated for a maximum of 9 hrs credit. Prerequisite: Senior standing and permission of instructor and Department Head.

4210 Physiology of Lactation (3) Development, anatomy, and function of mammary glands; secretory, nervous, endocrine interactions for mammary development and milk secretion; factors affecting yield and composition of milk. Prerequisite: 3320. 3 hrs and 1 lab.

4220 Avian Physiology (3) Anatomy and physiology of avian species with emphasis on poultry. Prerequisite: 3210. 2 hrs and 1 lab.

4230 Applied Reproduction in Farm Animals (3) Application of methods and techniques in collecting, evaluating, inseminating, and sperm processing semen; insemination of females; pregnancy determination; gestation and parturition. Male and female infertility. Prerequisite: 3220. 1 hr and 2 labs.

4310 Feeding Systems for Ruminants and Horses (3) Application of nutrition and feeding principles in comparison of feeding systems utilized during the life cycle of cattle and swine. Laboratory feeding trials to demonstrate basic nutrition concepts. Prerequisite: 3330. 2 hrs and 1 lab.

4410 Applied Animal Breeding (3) Applications of principles studied in 4320 for selection of sires for special purposes in breeding of dairy cattle, meat animals and poultry. Prerequisites: 3420. 2 hrs and 1 lab.

4610 Advanced Beef Cattle, Dairy Cattle, Horse, Poultry, Sheep and Swine Judging (2) Specialization in judging, evaluation, selection, and presentation of oral reasons on classes of beef cattle, dairy cattle, horses, poultry, sheep and swine. May not be repeated for credit. Prerequisite: Permission of instructor. 2 hrs and 1 lab.

4810 Beef Cattle Production and Management (4) Integration of principles of nutrition, physiology and breeding into complete beef cattle management program. Topics will include structure of industry, enterprise establishment, systems of production, production practices and herd improvement programs. Alternatives evaluated in terms of production costs, animal health, carcass quality and economic returns. Prerequisite: Completion of animal science sophomore and junior core courses or permission of instructor. 3 hrs and 1 lab.

4820 Dairy Cattle Production and Management (4) Integration of principles of nutrition, physiology and breeding into complete dairy cattle management program. Topics will include structure of industry, enterprise establishment, systems of production, production practices and herd improvement programs. Alternatives evaluated in terms of production costs, animal health, carcass quality and economic returns. Prerequisite: Completion of animal science sophomore and junior core courses or permission of instructor. 3 hrs and 1 lab.

4830 Pork Production and Management (4) Integration of principles of selection, nutrition, breeding, physiology and marketing into complete pork production and management program. Topics will include structure of industry, enterprise establishment, systems of production, production practices and herd improvement programs. Alternatives evaluated in terms of production costs, animal health, carcass quality and economic returns. Prerequisite: Completion of animal science sophomore and junior core courses or permission of instructor. 3 hrs and 1 lab.

4840 Poultry Production and Management (3) Structure of poultry industry, organization and management of poultry enterprises including rearing, housing, feeding, processing and marketing. Prerequisite: Completion of animal science sophomore and junior core courses or permission of instructor. 3 hrs and 1 lab.

4850 Light Horse Production and Management (3) Integration of principles of nutrition, physiology and breeding into light horse enterprises including training, housing, feeding, processing and marketing. Prerequisite: Completion of animal science sophomore and junior core courses or permission of instructor. 3 hrs and 1 lab.
Food Technology and Science (390)

Professors: J.T. Miles (Head), Ph.D. Wisconsin; T.B. Harrison (Emeritus), M.S.A. Tennesse; W.W. Overcast, Ph.D. Iowa State.

Associate Professors: J.L. Collins, Ph.D. Maryland; B.J. Demott, Ph.D. Michigan State; H.O. Haynes, Ph.D. Illinois; C.G. Melton, Ph.D. Kansas State.

Assistant Professors: S.L. Melton, Ph.D. Tennesse; M.J. Riemann, Ph.D. Kansas State.

2110 Food Regulations and Standards (3) Federal and state laws regulating food industry. Quality grades and standards and methods of evaluating processed foods. 2 hrs and 1 lab.

2120 Food Manufacturing (4) Preparation of raw materials, cleaning, grading, slicing, cooking, extruding, filtering, plunging, mixing and heat processing. Prereq: Math 1550. 3 hrs and 1 lab.

3020 Dairy Products I (4) Procurement, processing and distribution of fluid milk. Manufacture of frozen and condensed dairy products. 3 hrs and 1 lab.

3210 Food Composition (3) Determination and study of major constituents of fresh and processed foods with attention to changes and interactions occurring during processing and storage. Prereq: Chemistry 1120 or 1520 or 1620. 2 hrs and 1 lab.

3220 Food Preservation (4) Survey of food industry and preservation methods for prevention of deterioration of food. Prereq: Microbiology 2610. 3 hrs and 1 lab.

3570 Evaluation and Grading Dairy Products (3) Market standards and grades of dairy products with practice in grading milk, ice cream, butter, cheese and other specialized dairy products. 1 hr and 2 labs.

3610 Meat Evaluation and Grading (3) Grading standards for quality and quantity of principles of evaluating beef, pork and lamb. Practice in grading and judging carcasses and cuts. 1 hr and 2 labs.

3840 Meat Science (3) Processing methods, carcass characteristics, animal meat, butcher, cutting, selection, curing, freezing and cookery. 2 hrs and 1 lab.

4000 Problems in Food Technology (1-4) Research problems in student's area of interest. Required written report. Supervised experience in state or federal laboratories or approved industries encouraged. May be repeated for a maximum of 9 hours credit. Prereq: Permission of department head.

4010 Food Technology and Science Seminar (1-3) Review of literature; oral and written reports. May be repeated for a maximum of 3 hours credit. Prereq: Junior standing and permission of instructor.

4030 Dairy Products II (4) Principles in the manufacture of butter, cheese and special dairy products. Prereq: 3020. 3 hrs and 1 lab.

4050 Advanced Food Composition (3) Intensive study of food constituents and changes affected by processing and storage. Prereq: 310 and Nutrition 3320 or equivalent. 2 hrs and 1 lab.

4110 Food Plant Sanitation (3) Environment for manufacturing and preserving foods. Prereq: Junior standing. 2 hrs and 1 lab.

4120 Food Quality Assurance (3) Systems for quality assurance in food industries. Various methods including statistics used by food industries to assure desired quality of food products. Prereq: Junior standing and 3 hrs statistics. 2 hrs and 1 lab.

4210 Food Additives (3) Substances used in food manufacturing with emphasis on properties and functions. Prereq: Nutrition 3320 or equivalent.

4310 Food Packaging (3) Characteristics and application of materials and containers to packaging requirements of food. Prereq: 3220. 2 hrs and 1 lab.

4410 Food Crop Products (3) Food products from crops with emphasis on types, manufacturing systems, quality attributes and utility.

4810 Microbiology in Food Manufacturing (3) Relationship of growth of common food microorganisms in fermentative and enzymatic changes occurring during processing and manufacturing of foods. Prereq: Microbiology 2610 or equivalent. 1 hr and 2 labs.

4820 Fermented Foods (3) Role of microorganisms in preparing foods with emphasis on development of certain desirable characteristics, flavor, aroma, texture, and keeping quality. Prereq: Microbiology 3610. 2 hrs and 1 lab.

4840 Meat Products Manufacturing (3) Prepared meat products with emphasis on information relating to cost controls, inspection and meat science. Prereq: 3940 or consent of instructor. 1 hr and 2 labs.
3120 Wood Technology (4) Wood properties; identifi-
cation of defects caused by macro and micro
characteristics. Prereq: 3040, 3050 (3050 may be
taken concurrently). 2 hrs and 2 labs.
3130 Forest Protection (3) Destructive agencies;
fire, insects, disease; chemical, mechanical, and
biological control; prevention and suppression.
3210 Forest Resource Economics (4) Allocation of
forest resources via market and institutional sys-
tems. Application of economics to forest resource
development; concepts of private and public sector.
Prereq: Economics 2120.
3220 Forest Products and Utilization (3) Harvesting,
processing, marketing factors in stand conversion,
interstate and international harvest. Prereq: 3120.
3230 Wildlife Management (3) Lives and ecological
relationships of wild animals; biological, social, and
economic aspects of their management. 2 hrs and 1
lab. (Same as Wildlife and Fisheries Science 3230.)
3240 Introduction to Forest Recreation (3) Con-
cepts of leisure time in recreation. Historical
development of forest recreation. Forest recreation
resources. Development, management, and admin-
istration of public recreation areas and systems.
3320 Principles of Silviculture (3) Influence of site
factors on reproduction, growth, development, and
character of forest vegetation; classification of forest
structure: silvicultural laws. Prereq: 3020 or
Biology 2130, 3040, Plant and Soil Science 2130.
3370 Conservation (3) Forest resources of state,
nation, and world; forests in soil and water conserva-
tion; wildlife management and recreation; conser-
vation programs.
4002 Utilization (3) Wood-using industries: tree-
logging processes—sawmills, tree-log-summer
grinding, pulpwood operations, flooring plants,
treating plants; plant layout, flow diagrams. Prereq: 3120.
4003 Field Methods of Timber Inventory (4) Field
measurements of forest trees; timber cruising;
determining appropriate sample design for specific
purposes; tree and stand growth; site evaluation;
field problems. Prereq: 3110 and Agricultural
Mechanization 3140.
4004 Forest Practice (3) Management of forest lands
by public and private organizations; "multiple-use"
concept as it influences management decisions;
intracility of public recreation areas and systems
in management decisions; management prescrip-
tions. Prereq: 4006. Satisfactory-No Credit.
4006 Silvicultural Methods (4) Methods and ap-
plications in forest regeneration, cutting, site
preparation, planting and seeding, modifications
of cutting methods to obtain desired goods and
benefits. Prereq: 4002, 4003.
4200 Forest Watershed Management (3) Water as a
forest resource; role of forests in the hydrologic
cycle; control of water quantity, quality, and regi-
men, watershed planning. Prereq: 3250 or permis-
sion of instructor. 3 hrs. Two overnight field trips.
4110-20-30 Problems in Forestry (1-4, 1-4, 1-6)
Special research or individual problems in forestry.
Prereq: Senior standing. Total not more than 9 hrs.
4210 Forestry Organization and Administration (3)
Forestry organization; planning concepts and types of
planting services; ration making in forest
resource management. Prereq: Junior Field Session
for Forestry. Prereq for Forest Resources Management or
senior standing for majors in the Recreation Option
and Wildlife and Fisheries Science.
4220 Forest-Resource Management (4) The forest as
integration of resource uses; review of traditional
timber-management concepts; the multiple-use
concept; valuation of forest resources for decision
making and planning; taxation of forest firm. Prereq:
4210.
4230 Forest-Resource Management Plans (4) Field
problems and case studies in forest-resource man-
agement; the forest as a system; management of
forest enterprises as a producer of timber, recrea-
tional services, watershed services, and wildlife;
production of multiple services; preparation of a com-
plete plan based on optimizing forest uses. Prereq: 3210.
4240 Interpreting Forest Resources (3) Principles and
techniques of interpreting forest resources; importance of
environmental interpretation to manage-
ment of forest resources; development and administration of
interpretive services. Possible overnight field trips required. Prereq: 3240 or
equivalent.
4330 Forest Policy (3) History of forestry in United
States with emphasis on development of forest re-
source policies; current policies influencing de-
velopment and management of forest resources;
brief survey of policy implications of forest resource
organizations in public and private sectors. Prereq:
4004.
4340 Aerial Photography in Forest-Resource Man-
agement (3) Use of conventional aerial photogra-
phs in forest-resource management; interpreta-
tion of detail, aerial inventories, preparation of cover-type maps, uses of other remotely sensed
imagery. Prereq: Civil Engr. 4260 and Forestry 3110 or
equivalent. 1 hr and 2 labs.
4420 Forest Tree Improvement (3) Forest tree im-
provement related to silviculture; nature and pur-
puses of tree improvement and germ plasm; factors
inherent in classification of tree germ plasm; prin-
ciples of tree cytology and population genetics;
importance of seed source; variation, selection of
superior pheno-types and development of seed
orchards; hybridization; seed production and seed
certification. Prereq: 4006, Botany 1120. 2 hrs and
1 lab.
4430 Regional Silviculture of the United States (3)
Factors which influence silvicultural management of
important tree species in North America. Importance of forests and forestry to a region;
physiography, geology, soils, climate and weather,
sites and site types, ecology, problems of protection,
and silvicultural characteristics of the more
important species. Prereq: 4006 and 4210.
4440 Forest Recreation (3) Forest lands as a re-
creation resource; interrelationships of forest
recreation and other management activities;
development and management of forest recreation
areas; socio-economic and political determinants of
recreation development and management. Prereq: 6
credits in sociology and/or economics. Junior
standing. 2 hrs and 1 lab.
GRADUATE
5000 Thesis
5110 Special Problems in Forestry (1-4)
5220 Seminar in Forest Tree Biology (3)
5230 Seminar in Forest Management (3)
5240 Seminar in Forest Genetics (3)
5250 Recreation Planning for Forests and As-
associated Lands (3)
5260 Industrial Forestry (3)
5270 Topics in Forest Industries Management (3)
5310 Seminar (1)

Wildlife and Fisheries Science (993)
3200 Wildlife Resources and Their Conservation (3)
Wild animal resources of the United States; their
interrelationships with soil, water, and forests and
other plant life; contribution to economic and social
development; importance and methods of conserv-
ing wildlife. General course for non-wildlife and
fisheries science majors.
3230 Wildlife Management (3) Same as Forestry 3230.
Prereq: Credit for Forest Resources Management 3230 or
non-wildlife science majors.
4110 Problems in Wildlife and Fisheries Science (1-
4) Special research or problems in wildlife and
fisheries science. Prereq: Senior standing. May be
repeated. Maximum credit 9 hours.
4450 Game Mammals (4) Classification, identifi-
cation, distribution, natural history, and manage-
ment principles of game mammals in North America.
Prereq: 3230 or one year of zoology. 2 hrs and 2 labs.
4460 Game Birds (4) Biology, classification, identifi-
cation, distribution, and management of game
birds in North America. Prereq: 3230 or one year
of zoology. 2 hrs and 2 labs.
4500 Problems in Wildlife and Fisheries Sciences (1-
6) Special research or individual problem in wildlife
and fisheries science. Prereq: Senior standing. May
be repeated to maximum of 9 hours credit.
4510 Freshwater Fishery Biology (4) Principles and
methods of fish population estimation; population
dynamics; sampling techniques and equipment;
warm and cold-water environments as commercial
and sport fisheries. Prereq: 1 year biology and 8
hours mathematics, or consent of instructor. 3 hrs
and 1 lab or field period.
4520 Management of Lakes and Ponds (4) Principles
and methods of lake and pond management for
commercial and sport fishes; design, renovation,
and stocking procedures; biology and culture of
managed species. Prereq: 4510 or consent
of instructor. 3 hrs and 1 lab or field period.
4520 Seminar (1) Review of literature. Oral and
written reports. Prereq: Senior standing. May be
repeated to maximum of 3 hours credit.

GRADUATE
5000 Thesis
5110 Special Problems in Wildlife and Fisheries Science (1-6)
5210 Seminar in Wildlife Conservation (3)
5310 Seminar (1)
5400 Advanced Topics in Wildlife Science (3)
5450 Wildlife Diseases (3)
5460 Predator Ecology (3)
5500 Advanced Topics in Fisheries Science (3)

Ornamental Horticulture and Landscape Design (740)

Ornamental Horticulture and Landscape Design (740)
GRADUATE

5000 Thesis

5011-21 Special Problems in Lieu of Thesis (3, 5-5)

5100 Special Problems in Ornamental Horticulture and Landscape Design (3)

5210 Golf Course Design, Development, and Management (4)

5210 Park and Public Grounds Management Systems (4)

5500 Seminar (1)

Plant and Soil Science (792)

Professors:
L.F. Seatz (Head), Ph.D. North Carolina State;
F.F. Bell, Ph.D. Iowa State; H.A. Fribourg, Ph.D. Iowa State;
L.M. Josephson, Ph.D. Wisconsin;
W.L. Parks, Ph.D. Purdue; B.S. Pickett (Emeritus),
Ph.D. Michigan State; L.N. Skold, M.S. Kansas State;
M.E. Springer, Ph.D. California (Berkeley);
H.D. Swingle, Ph.D. Louisana State.

Associate Professors:
D.L. Coffey, Ph.D. Purdue; B.V. Conor, Ph.D. Washington State;
L.S. Jeffery, Ph.D. North Dakota State;
W.A. Krueger, Ph.D. Illinois;
R.J. Lewis, Ph.D. North Carolina State;
V.H. Reich, Ph.D. Iowa State; J.H. Reynolds, Ph.D. Wisconsin;
H.C. Smith, M.S. Tennessee.

Assistant Professors:
F.L. Allen, Ph.D. Minnesota; G.M. Lessman,
Ph.D. Michigan State.

*Clyde B. Austin Distinguished Professor.

2130 Soils (4) Nature and properties of soils. Physical, chemical, biological processes in soils and their influence on crop growth. PreReq: Chemistry 1120 or 1520 or 1620. 3 hrs and 1 lab.

3020 Crop Ecology (3) Crops and environment: geographic location; site, heat, light, water and interplant relationships as a basis for judgment of cultural practices used to modify environmental factors. PreReq: 8 hours biological science. 2 hrs and 1 lab.

3110 Soil Fertility and Fertilizers (4) Properties of soils in relation to plant nutrient availability and uptake. Methods of soil fertility evaluation and principles of fertilizer use; manufacture and properties of fertilizers. PreReq: 2130. 3 hrs and 1 lab.

3120 Grain and Oil Crops (3) Distribution, improvement, morphology, culture, harvesting, and utilization of corn, small grains, grain sorghum, soybeans, and related crops. PreReq: 2130. 8 hrs biological science. 2 hrs and 1 lab.

3140 Forage Crops (4) Characteristics, adaptation, improvement, management, and utilization of grasses and legumes for pastures, hay, and silage. PreReq: 2130. 8 hrs biological science. 3 hrs and 1 lab.

3160 Cotton and Tobacco (4) Characteristics, adaptation, improvement, culture, harvesting, and marketing of cotton and tobacco. PreReq: 2130. 8 hrs biological science. 3 hrs and 1 lab.

3180 Fruit Crops Management (4) Soils, planting, cultivation, development of fruit crops plantations; pest control, harvesting, packing, storage and processing. PreReq: Ag Biology 3210, 3130. 3 hrs and 1 lab.

3220 Soil Management (4) Soil management for crop production including cropping systems, fertilizer use, and tillage operations for specified soil and farming conditions. PreReq: 2130. 3 hrs and 1 lab.

3250 Soils in Forestry (3) Soil as a medium for tree growth; relation of physical, chemical, and biological properties of soils to tree growth and management of forest stands. Soil properties of importance in road location, recreational development and watershed management. PreReq: 2130; Forestry 3320. 2 hrs and 1 lab.

3510 Commercial Production of Cool Season Vegetables (3) Characteristics, economic importance, adaptability, and production for fresh and processing markets; emphasis on greens, salad, cole, root, bulb and onion crops. PreReq: 8 hrs biological science. 2 hrs and 1 lab.

3520 Commercial Production of Warm Season Vegetables (3) Characteristics, economic importance, adaptability, and production for fresh and processing markets; emphasis on sweet potatoes, beans, tomatoes, pepper, cucurbits, sweet corn and okra. Need not precede 3510 as prereq. PreReq: 8 hrs of biological science. 2 hrs and 1 lab.

3610 Interpretation of Agricultural Research (3) Statistics as applied to agriculture. Statistical methods in interpretation of research results. PreReq: Math 1550.

3710 Principles of Weed Science (4) Basic principles of weed science, history, ecology, economic losses, means of control, types of herbicides, and specific recommendations for various crops and noncrop uses. PreReq: 8 hrs biological science and 3 hrs organic chemistry. 3 hrs and 1 lab.

4110 Soil Chemistry (4) Colloidal systems; properties and behavior of colloidal soil materials; relations of chemical properties to plant nutrient availability. PreReq: 2130; Physics 1210. 3 hrs and 1 lab.

4120 Principles of Crop Breeding (4) Genetic principles and techniques used in crop improvement. PreReq: 8 hrs biological science or permission of instructor. 3 hrs and 1 lab.

4230 Soil Analysis (3) Analytical techniques used in soil chemistry and soil fertility studies. PreReq: 4110; Chemistry 2140 or concurrent. Two 3-hr labs.

4250 Agricultural Chemicals and the Environment (4) Characteristics, use, mode of action, degradation, and environmental impact of chemicals used in agriculture, forestry, and related areas with emphasis on agricultural pesticides; environmental safeguards imposed by federal and state regulations on chemical development and use. PreReq: One year biological sciences and one year chemistry; 3 hrs and 1 lab.

4320 Soil Formation, Morphology, and Classification (4) Soil formation; properties, distribution, and classification of soils; interpretation of morphology; use of soil surveys. PreReq: 2130. 3 hrs and 1 lab.

4400 Problems in Plant and Soil Science (1-6) Special research or library problems in some phase of plant and soil science. May be repeated to maximum of 9 hours credit.


GRADUATE

5000 Thesis

5011-21 Special Problems in Lieu of Thesis (3, 5-5)

5100 Special Problems in Plant and Soil Science (1-6)

5200 Soil-Crop Relationships (3-6)

5240 Soil Productivity and Management (3)

5250 Pedology (4)

5310 Design and Interpretation of Experiments (3)

5340 Soil Physics (3)

5370 Advanced Soil Fertility (3)

5390 Soil Physical Chemistry (3)

5600 Seminar (1)

5710 Advanced Plant Genetics (3)

5720 Quantitative Genetics (3)

5750 Advanced Crop Breeding (4)

5810 Crop Climatology (4)

5820 Advanced Crop Physiology and Ecology (4)

5850 Mechanisms of Herbicide Action (3)
Excellent opportunities exist also for veterinarians interested in research—both research for the direct benefit of animals and research conducted with animals but with the benefit of humans. Such opportunities are available at colleges and universities, and with governmental agencies, private research institutions, and biological and pharmaceutical companies.

Facilities

Administrative offices of the College of Veterinary Medicine are located in Morgan Hall on the Agricultural Campus. The Department of Animal Science is housed in Brehm Animal Science Building, also on the Agricultural Campus, and the Department of Microbiology is located in Hesler Biology Building on “The Hill” of the University of Tennessee, Knoxville.

The remainder of the College will be housed in a large teaching hospital which is under construction and scheduled for occupancy in 1978. In the interim, the Department of Environmental Practice is housed in the old Agricultural Engineering Building and the Department of Urban Practice is housed in McCord Hall on the Agricultural Campus. Headquarters of the Department of Pathobiology temporarily is in Morgan Hall.

The College also is developing research farm facilities at Knoxville and several satellite teaching-research facilities in middle and west Tennessee.

Admission Requirements

Admission to the professional program of the College of Veterinary Medicine is limited to that number for which an education of high quality can be provided with the resources available to the College.

To qualify for admission a candidate must have completed at least the following minimum pre-veterinary requirements:

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Minimum Credits per Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>English, including speech</td>
<td>12</td>
</tr>
<tr>
<td>Humanities</td>
<td>12</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>12</td>
</tr>
<tr>
<td>Mathematics through calculus</td>
<td>8</td>
</tr>
<tr>
<td>Chemistry: general</td>
<td>12</td>
</tr>
<tr>
<td>organic</td>
<td>12</td>
</tr>
<tr>
<td>biochemistry</td>
<td>8</td>
</tr>
<tr>
<td>Physics</td>
<td>12</td>
</tr>
<tr>
<td>Biology or zoology</td>
<td>12</td>
</tr>
<tr>
<td>Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>Animal Science, including</td>
<td>13</td>
</tr>
<tr>
<td>nutrition and genetics</td>
<td>9</td>
</tr>
</tbody>
</table>

115 78

*Excluding laboratory.

+Includes history, literature, music or art appreciation, philosophy, religion or foreign language.

The College of Agriculture of The University of Tennessee offers an excellent 3-year pre-veterinary curriculum which satisfies all the course requirements for admission to the College of Veterinary Medicine. (For description see Pre-veterinary Medicine curriculum, College of Agriculture.) Students who are admitted to the College of Veterinary Medicine following completion of this pre-veterinary curriculum will receive a Bachelor of Science degree in Animal Science upon completion of the first year (3 quarters) of the professional veterinary medicine curriculum. (For the specific description see Pre-veterinary Medicine curriculum, College of Agriculture.)

Admission Procedure

Admission of new students will be for the fall quarter each year. Applicants will be screened carefully by a faculty committee to determine those best qualified for admission within the College enrollment quota.

Applicants will be considered in the following order of priority: (1) residents of Tennessee; (2) legal residents of states with which the University of Tennessee has contracts for veterinary medical education; (3) residents of other states or foreign countries.

Forms and instructions for making application for admission may be obtained from:

Director of Admissions
320 Student Services Building
University of Tennessee
Knoxville, Tennessee 37916

Applications must be completed and mailed so as to reach the Director of Admissions by January 31 each year. All pre-veterinary requirements must be completed by the end of the spring term of the year in which the student plans to enroll in the College of Veterinary Medicine.

Course Load

The professional curriculum of the College of Veterinary Medicine requires a specific number of hours for each quarter. A student may enroll for fewer or more than that number only with the permission of the Dean. Because of the sequential and highly integrated character of the professional curriculum, all courses in a given quarter are considered prerequisite to those in the succeeding quarter.

Professional Curriculum

The professional curriculum in veterinary medicine is a three-year, year-round program, including summers. The first year (3 quarters) consists mostly of preclinical subjects such as anatomy, physiology, microbiology, parasitology, and general pathology. The second year (4 quarters) includes the study of diseases, their causes, diagnosis, treatment, and prevention. The final year (4 quarters) is devoted to intensive training in the solving of animal disease problems, including extensive clinical experience in the teaching hospital. The curriculum also provides for education in the sciences and the art of veterinary medicine and in paramedical subjects such as animal behavior, medical communication, professional ethics, jurisprudence, economics, and practice management.
Departments of Instruction

Animal Science (114)—Veterinary Medicine

Professors:
R.R. Johnson (Head), Ph.D, D.O. Ohio State; M.C. Bell, Ph.D, Oklahoma State; J.K. Bletner, Ph.D, Ohio State; C.C. Chamberlain, Ph.D, Iowa State; S.L. Hansard, Ph.D, Florida; H.M. Jamison, Ph.D, Tennessee; J.B. McLellan, Ph.D, Auburn; M.J. Montgomery, Ph.D, Wisconsin; G.M. Merriman, D.V.M, Michigan State; R.L. Murphee, Ph.D, Wisconsin; D.O. Poskitt, Ph.D, Ohio State; H.V. Shirley, Ph.D, Illinois; R.R. Shrode, Ph.D, Iowa State; E.W. Swanson, Ph.D, Missouri; R.L. Tugwell, Ph.D, Kansas State; C.E. Wylie (Emeritus), A.M. Missouri.

Associate Professors:

Assistant Professors:
J.A. Corrick, Ph.D, Tennessee; D.G. Doyle, Ph.D, Cornell; J.P. Hochcock, Ph.D, Michigan State; J.W. Holloway, Ph.D, Oklahoma State; F.B. Masinupp, Ph.D, Kansas State; M.H. Sims, Ph.D, Auburn; J.D. Smalling, Ph.D, Texas A & M.

Instructor:
G.C. McGhee, B.S, Tennessee.

In addition, academic expertise of staff members at CARL and Oak Ridge are used on appropriate occasion.

8240-50 Veterinary Physiology (3, 4) Introduction to concepts in veterinary physiology which form a base for clinical applications and for formal training in pharmacology, medicine, pathology and surgery. Order: I. Respiration: respiratory, cardiovascular, digestive, and genito-urinary, etc. Three hours of lecture for 8240; 4 hours of lecture for 8250.

8510-20 History (4, 4) Microscopic anatomy of respiratory, cardiovascular, digestive, urinary, and reproductive systems; integration, and special sense organs. Sequence of presentation as listed above. Correlated with 8540-50. Two hours of lecture and two laboratories.

8540-50 Gross Anatomy (4, 4) Gross anatomy of common domestic species. Lecture: dissection of embalmed specimens; study of projections, slides, models, and living animals. Cardiovascular and respiratory systems are first in sequence. Correlated with 8510-20 if possible. One-hour lecture and two laboratories.

Environmental Practice (346)

Professor:
H. Kitchen (Head), D.V.M, California (Davis), Ph.D, Florida.

Associate Professor:
J.W. Oliver, D.V.M, Ph.D, Purdue.

Assistant Professor:

8611-12 Pharmacology (1, 2) Theories of transport across membranes. Introduction to principles of drug action and distribution. Receptor theory; adverse drug reactions; correlated with Animal Science 8240-50. One-hour lecture for 8611; Two hours of lecture for 8612.

Microbiology (685)—Veterinary Medicine

Professors:

Associate Professors:
J.M. Becker, Ph.D, Cincinnati; T.C. Montie, Ph.D, Maryland; W.S. Rigsby, Ph.D, Yale.

Assistant Professors:

8101 Microbiology I (5) Part I, Basic microbiology; microbial structure, metabolism, macromolecules and genetics. Part II, Immunology: nonspecific and specific humoral and cellular host response to infection (and "foreign" material), immunopathology, and certain aspects of immunogenetics (e.g., transplantation). Three hours of lecture and two laboratories.

8102 Microbiology II (3) Part I, Bacterial pathogenesis: disease patterns and mechanisms of bacterial pathogenesis related to their properties including clinical, metabolic, enzymes and other bacterial products. Part II, Viral pathogenesis: disease patterns and mechanisms of viral pathogenesis related to their properties including acute, latent, and "slow virus" infections, and cancer. Two hours of lecture and one laboratory.

8103 Microbiology III (3) Part I, Viral pathogenesis continued. Part II, Medical mycology: disease patterns and mechanisms of pathogenesis of yeasts, molds and "imperfect" fungi, related to their properties, including spores, dimorphism, etc. Two hours of lecture and one laboratory.

Pathobiology (742)

Professors:

Associate Professor:

8710 Veterinary Pathology (6) Principles of pathology including causes of disease, disturbance of cell growth, inflammation, and neoplasms; introduction of clinical pathobiology. Three hours of lecture and three laboratories.

8730 Veterinary Parasitology (3) Basic principles of parasitology, protozoology, helminthology, and entomology and their relation to disease in animals. Two hours of lecture and two laboratories.

Rural Practice (870)

Professors:

Associate Professors:

Assistant Professors:
J.W. Allon, D.V.M, Texas A & M; D.O. Goble, D.V.M, Kansas State; R.D. Jones, D.V.M, Western College of Veterinary Medicine, Saskatchewan (Canada); M.A. Walker, D.V.M, Texas A & M.
Urban Practice (886)

Professor: E.D. Gage (Head); D.V.M. Texas A & M.


Interdepartmental Offerings

Veterinary Medicine (987)

8010 Professional Relations (1) Professional speaking and writing, research design and data interpretation, and public relations. One-hour lecture.

8310 Introduction to Veterinary Medical Practice (2) Species, breed identification, basic care, feeding, restraint and handling. Introduction to physical diagnosis, intravenous techniques, blood sampling, etc. One-hour lecture and one laboratory.

8311 Introduction to Veterinary Medical Practice (2) Physical diagnosis, history taking, and client relations, anesthetic principles, agents, and techniques. One-hour lecture and one laboratory.

8312 Introduction to Veterinary Medical Practice (2) Basic surgical principles, preparation for surgery, wound healing and suturing: fundamentals of radiology. Correlated with 8350. Two hours of lecture and one laboratory.

8320 Medical Science Interactions (3) Multidisciplinary laboratory: Demonstrations and surgical experiments to illustrate variety of physiologic and pharmacologic principles. Emphasis on anesthetic techniques, basic clinical chemistry. (i.e., acid-base) provides appreciation for survival and emergency techniques and for drug action. Correlated with 8312. Two hours of lecture and one laboratory.

8340 Integumentary System (4) Diseases of integumentary system of animals, with emphasis on laboratory examination, interpretation of pathologic features, diagnosis, and treatment.

8341 Hemopoietic System (3) Pathogenesis, diagnosis, and clinical management of diseases of hemopoietic and lymphoid organs and tissues.

8342 Alimentary Tract (8) Pathogenesis, diagnosis and treatment of diseases of alimentary tract and digestive organs.

8343 Patterns of Disease (5) Host-agent relationship in disease of animals. Pathogenesis, laboratory diagnosis, control, and public health significance are the major components. Principles of epidemiology and their application in the study of diseases in animal populations illustrated.

8344 Focal Problems (1) Series of sessions to consider specific diagnostic problems or paramedical subjects important to veterinary medical practice. Some sessions consider differential etiology, diagnosis, and treatment of certain disease signs or symptoms; others consider implications for veterinarian of medical jurisprudence and ethics, practice economics, and veterinary history. May be repeated, S/NC.

8350 Endocrine—Reproductive System (7) Reproductive diseases of animals with emphasis on anatomic and functional aspects. Biochemical and physiologic basis of endocrine diseases of animals, including diagnosis, treatment, and management. Endocrine interrelationships, including methods of examination of mammary glands and reproductive tract, diagnosis, and treatment.


8352 Cardiovascular-Respiratory Systems (7) Pathogenesis, diagnosis, and management of cardiovascular and respiratory diseases of animals. Anatomic, physiologic and pharmacologic principles providing the basis for medical and surgical treatment.

8353 Metabolic Diseases (2) Biochemical and physiologic determinants of metabolic diseases of animals, their diagnosis and prevention.

8360 Musculoskeletal System I (6) Diagnosis and treatment of muscular and skeletal diseases of small animals, emphasizing pathologic changes, radiologic techniques, interpretation of radiographs, and surgical procedures.

8361 Musculoskeletal System II (6) Diagnosis, prognosis, and management of musculoskeletal diseases of large animals, with emphasis on functional anatomy, radiographic techniques and interpretation, and surgical procedures applicable to equines and ruminants.

8362 Toxicology (3) Pharmacologic basis and pathologic features of diseases of animals caused by common toxic chemicals, with emphasis on clinical manifestations, diagnosis, and treatment.

8363 Public Health (2) Public health aspects of veterinary medicine and nature of related laws, ordinances and regulations. Veterinarian's role in the protection of environment, ecology, and quantity and quality of food.

8364 Nutritional Diseases of Animals (1) Biochemical and physiologic determinants of nutritional disease, with rational bases for treatment and prevention.

8365 Radiology (2) Advanced and special techniques in radiology.

8370 Neurosciences (9) Normal and abnormal neural structure and function in animals, with emphasis on clinical neurology and neuropathology.

8371 Visual and Auditory Systems (3) Methods of examination and treatment of diseases involving eyes and ears of animals, with emphasis on anatomic, physiologic and pathologic features.

8372 Comparative Medicine (3) Diagnosis, prevention, and treatment of diseases of laboratory animals, avian species, and marine mammals seen most commonly by practicing veterinarians.

8373 Advanced Medicine (3) Immunologic and genetic determinants of disease of domestic animals.

8374 Pathophysiology (3) Physiologic basis for, and concomitant pathologic changes in, selected examples of human and animal disease.
School of Architecture

Donald D. Hanson, Dean
William J. Lauer, Assistant Dean

The School of Architecture presents a comprehensive program of undergraduate courses, offering opportunities for both general studies and professional specialization.

The intent of the School's program is to complement the University's learning opportunities by providing curricula and course offerings in the art and science of design. Accordingly, the program is composed of informational, analytical, and integrative studies related to the human role in shaping and changing the built environment. The welfare of this environment, which is a vital factor in the well-being of people everywhere, depends upon the knowledge and skill which those educated in the design sciences can contribute to continuing processes of developmental change.

A goal of this revised program is to provide undergraduate studies in scholarly and professional areas related to the knowledge base and methodologies for working with the built environment, while at the same time utilizing the School's resources, faculty, and facilities to their maximum effectiveness.

Facilities

The design laboratories, classrooms, computer room, library, and administrative offices of the School are located in three buildings—Estabrook Hall, Melrose Annex, and Alumni Gym. It is entirely appropriate that one of the newest schools, and particularly architecture, should be temporarily housed in venerable Estabrook Hall constructed in 1896. Other disciplines that share direct interests with the School—engineering, fine arts, and industrial arts—are also located in the building. The Melrose Annex provides additional space for upperclass research and design activities.

The principal library holdings of the School are contained in the James D. Hoskins Library. Extensive general collections and reference volumes in architecture and the fine arts are housed there. These sources are augmented by the branch library of the School where students have access to all the reference books in current use.

Student Sponsorship

A number of $500 sponsorships are made available each year by architectural firms of Tennessee. These grants cover tuition and fees, travel expenses to a designated U.S. city for study purposes, subscription to a foreign architectural journal, purchase of special drafting equipment, and purchase of special reference books for the student recipients' personal libraries. Honor students in all the upper four years are eligible for this aid, but it is primarily awarded to students of third and fourth year standing.

Lecture Program

ROBERT B. CHURCH MEMORIAL LECTURESHIP

The income from the endowment is used to sponsor outstanding speakers from the profession.

General Information

Students are advised to consult the University's general requirements as stated in the front section of this catalog as well as the requirements for the School of Architecture.

Self advising will not be permitted in the School of Architecture. Students must plan their schedule by consulting with an assigned adviser in the student's area of concentration. Electives will be chosen with the concurrence of the adviser and with full consideration of the necessary prerequisites.

Requirements for Admission to Second Year Architecture

(1) satisfactory completion of first year architectural program with grade point average at least 2.3, exceptions may be made by petition only;

(2) a personal interview and evaluation of applicant's work by a designated member of the School of Architecture;

(3) application to the School of Architecture no later than June 15 preceding the start of the second year.

Students must maintain an overall 2.3 grade point average by the end of 48 hours (attempted) in order to maintain "full status" in the program.

Delinquent students will be put on "temporary status" for one quarter. These students will have one quarter to raise overall GPA to 2.3 or have minimum 2.3 on each quarter's work until overall average is raised to 2.3. If GPA is not brought up to 2.3, the student will be dropped from the architecture program.

Third Year Prerequisites

Students are required to have all first and second year courses satisfactorily completed before entering the third year design courses, Architecture 3011-12. Students who register for a third year design course holding first or second year deficiencies may be required to drop the course at any point during the quarter.

Minor

An undergraduate minor in architecture is offered in order to enable students in other colleges to pursue studies in architecture which are relevant to their major areas of concentration. The minor will consist of not less than 18 hours. Persons interested
must obtain the consent of the Admissions Committee of Architecture and dean of the School of Architecture, who will approve specific programs of study proposed by students.

**Course Load**

The average course load in any quarter is 17-18 credit hours. The minimum which may be taken by full-time students is 12 hours; the maximum which may be taken without approval of the dean is 20 hours.

**Satisfactory/No Credit Courses**

These courses, if successfully completed, will count as hours for graduation, although neither S nor NC grades will be calculated in the student's grade point average. Satisfactory is defined as C or better work on the traditional grading scale, and no credit is defined as less than C. The following regulations apply: (1) S/NC courses may not count for required courses or controlled electives. A student who desires to take a course S/NC should indicate this intention at the start of registration. A change from S/NC grading to regular grading or from regular grading to S/NC will not be permitted beyond the add deadline for each quarter. Exception: students who register for a course S/NC in a restricted area will be required to change to regular grading when the error is discovered.

**Program Description**

The undergraduate curriculum has two major components: a core of general and professional studies, and a range of concentrations for in-depth study. Within the scope of a professional degree program, it thus provides a number of study areas from which students may select according to their individual interests and aptitudes. Four areas of concentration—Administration, Design, History/Humanities, and Technology—each with a subset of paths, are offered; they share a common core which provides the basic prerequisites for entry into one of the study concentrations.

**GENERAL CORE**

The general core is an introduction to the knowledge base of the School's professional program. The courses are neither highly specialized nor overly technical; thus they are open and accessible to other disciplines within or outside the University. Although it is recommended that the series of core courses be taken in sequence, it is so constituted as to permit flexibility in scheduling, particularly to accommodate transfer students seeking elective credits. Courses in the general core, in addition to English, math, and physics, are from the following five divisions:

- Basic Design and Visual Studies
- Analytical Studies
- Man-Environment Systems
- Physical Systems
- Historical Studies

**PROFESSIONAL CORE**

Courses in the professional core represent subjects fundamental to professional competence in architecture. The following five divisions constitute this core:

- Structural Analysis and Materials
- Environmental Control Systems
- Professional Practice
- Architectural Design
- Practicum

Through controlled electives, required in this concentration, students can intensify and extend their professional skills and technical knowledge.

**ACCELERATED CORE**

Students demonstrating an exceptional proficiency in any of the professional core subjects may be approved for selected accelerated studies, thereby reducing the time needed to complete core requirements and allowing more time for concentration in the student's chosen area. Formal review and approval by the School are required of all accelerated core candidates.

**Curricula for Architecture**

All students studying for a Bachelor of Architecture degree will include the following requirements in their first three years of study. During the fourth and fifth years, the students' work will be concentrated in one of the following tracts: design, history, criticism, restoration/preservation, management, production, development, structures, systems building, and environmental controls. Refer to numbers in the 4300 sequence for architecture design lab electives. Any exceptions to the curriculum outline have been footnoted. For any additional specialized requirements, the student should inquire at the School of Architecture.

### Program for Architecture

**Degree:** Bachelor of Architecture

**Major:** Architecture

<table>
<thead>
<tr>
<th>Concentrations:</th>
<th>Design</th>
<th>History/Humanities</th>
<th>Administration</th>
<th>Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Criticism</td>
<td>2. Production</td>
<td></td>
<td>2. Environmental Controls</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Third Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture 3011-12</td>
<td>8 8 -</td>
</tr>
<tr>
<td>Architecture 3013-14</td>
<td>4 4 -</td>
</tr>
<tr>
<td>Controlled elective or 'Tract course'</td>
<td>4 4 -</td>
</tr>
<tr>
<td>³Architecture 3015</td>
<td>- 16</td>
</tr>
</tbody>
</table>

**Total:** 144 hours

**DESIGN CONCENTRATION**

**ARCHITECTURAL DESIGN TRACT**

<table>
<thead>
<tr>
<th>Fourth Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural Design Lab</td>
<td>i ii iii</td>
</tr>
<tr>
<td>Electives</td>
<td>8 8 8</td>
</tr>
<tr>
<td>Architecture 4311</td>
<td>- 8</td>
</tr>
<tr>
<td>Architecture 3101-02, 3130</td>
<td>4 4 4</td>
</tr>
<tr>
<td>History 1510-20</td>
<td>4 4 -</td>
</tr>
<tr>
<td>Controlled Electives</td>
<td>- 4</td>
</tr>
</tbody>
</table>

**Fifth Year**

| Architecture Design Lab | i ii iii |
| Electives | 8 8 8 |
| Controlled Electives | 4 4 4 |
| Electives | 4 4 4 |

**Total:** 240 hours

**HISTORY/HUMANITIES CONCENTRATION**

**HISTORY TRACT**

<table>
<thead>
<tr>
<th>Fourth Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural Design Lab</td>
<td>i ii iii</td>
</tr>
<tr>
<td>Electives</td>
<td>8 8</td>
</tr>
<tr>
<td>Architecture 4311</td>
<td>- 8</td>
</tr>
<tr>
<td>Architecture 3101-02, 4110</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Architecture 4140</td>
<td>- 4</td>
</tr>
<tr>
<td>History 1510-20</td>
<td>4 4 -</td>
</tr>
</tbody>
</table>

**Fifth Year**

| Architecture Design Lab | i ii iii |
| Electives | 8 8 8 |
| Controlled Electives | 4 4 4 |
| Electives | - 8 |

**Total:** 240 hours

**CRITICISM TRACT**

<table>
<thead>
<tr>
<th>Fourth Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural Design Lab</td>
<td>i ii iii</td>
</tr>
<tr>
<td>Lab Electives</td>
<td>8 8</td>
</tr>
<tr>
<td>Architecture 4311</td>
<td>- 8</td>
</tr>
<tr>
<td>Architecture 3101-02, 4110</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Architecture 4140</td>
<td>- 4</td>
</tr>
<tr>
<td>History 1510-20</td>
<td>4 4 -</td>
</tr>
</tbody>
</table>

**Fifth Year**

| Architecture Design Lab | i ii iii |
| Electives | 8 8 8 |
| Controlled Electives | 4 4 4 |
| Electives | - 4 |

**Total:** 240 hours

**RESTORATION/PRESERVATION TRACT**

<table>
<thead>
<tr>
<th>Fourth Year</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architectural Design Lab</td>
<td>i ii iii</td>
</tr>
<tr>
<td>Electives</td>
<td>8 8</td>
</tr>
<tr>
<td>Architecture 4311</td>
<td>- 8</td>
</tr>
<tr>
<td>Architecture 3101-02, 3140</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Architecture 4170</td>
<td>- 4</td>
</tr>
<tr>
<td>History 1510-20</td>
<td>4 4 -</td>
</tr>
</tbody>
</table>
## School of Architecture

### Fifth Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture Design Lab</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Electives</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Program</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture 4311</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Architecture 4175-80-85</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Controlled Electives</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>-</td>
<td>8</td>
</tr>
</tbody>
</table>

**Total: 240 hours**

### MANAGEMENT TRACT

<table>
<thead>
<tr>
<th>Program</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture 4501-02, 4351</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Industrial Engr. 4150</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Architecture 3701, 4525</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Architecture 4510-15, 4531</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total: 240 hours**

### PRODUCTION TRACT

<table>
<thead>
<tr>
<th>Program</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture 4503-04, 4340</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Controlled Electives</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total: 240 hours**

### DEVELOPMENT TRACT

<table>
<thead>
<tr>
<th>Program</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture 4501-02, 4351</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Architecture 4520, 4550</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Controlled Electives</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total: 240 hours**

### TECHNOLOGY CONCENTRATION

<table>
<thead>
<tr>
<th>Program</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems Building Tract</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Architecture 4761-62</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Architecture 4741</td>
<td>4-4</td>
<td>4</td>
</tr>
<tr>
<td>Controlled Electives</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

**Total: 240 hours**

### Controlled Electives List

**Design Concentration**

Accounting 2110-20, Anthropology 2510, 2530, 3410, Audiology and Speech Pathology 4750, Architecture 2101, 2102, 3113, 3712, 3910, 4110, 4137, 4160, 4710, 4720, 4721-22, 4725-26-27, 4734, 4735, 4736-37, 4739, 4771-72-73, 4775, 4780, 4785, 4900, 4910, Art 3735, 3736, 3745, 3746, 3765, Botany 1110-20 3030, 3090, Broadcasting 3650, 4020, 4030, Business Law 4110, Child and Family Studies 2110, 3510, 3515, 3520, 4260, 4430, 4830, Chemistry 1110-20-30, Civil Engineering 4430, Crafts, Interior Design and Housing 3256, 4515, 4556, 3125, 4130, 4310, Communications 1110, Computer Science 2010, 3410, 4410, Educational Curriculum and Instruction 3310, Economics 2110-20-30, 3110, 3340, 4150, Electrical Engineering 4850, Environmental Engineering 3000, 4700, Finance 3110, 3210-30, 4350-60, 4370, Food Sys and Administration 3310, Geography 2400, 3000, 3430, 3520, 3530, 4720, 4740, Geology 3510, 3520, History 4760, 4740, Industrial Engineering 4150, Journalism 3710, Law 8490, Marketing 3110, 3120, 3210, Mechanical Engineering 4220, Office Administration 2750, Philosophy 1510-20, Physical Education 3090, Political Science 4580-90, Psychology 3050-60, 3250, 3310, 4110, 4115, 4120, 4125, 4130, 4135, 4137, 4140, 4150, 4160, 4170, 4175, 4180, 4185, Art 3710, 3711, 3720, 3730, 3755-56-57, 3765, 3775-76-77, 4875-76-77, 5855-56-57, 5770, Classics 4220, History 4670, 4740, Journalism 2210, 3120, 2220, Planning 4100. (Other electives may be accepted upon approval by the History/ Humanities Area Committee.)

**Accounting**

Accounting 2110-20, 2210; Architecture 4510, 4515, 4520, 4525, 4530, 4531, 4532, 4540, 4545, 4554, 4560, 4565; Business Administration 1110; Business Law 4110, 4120, 4130; Civil Engineering 4230, 4430; Economics 2110-20-30, 3210, 3340, 3410, 4120, 4130; Finance 3110, 3123-30, 3640; Industrial Engineering 4150, 5250, 5260, 5600; Insurance 3020; Industrial Management 3010, 3110, 3430, 4630; Journalism 3800; Marketing 3110, 3210, 4140, 4150; Office Administration 4510, 4540, 4550, 4560; Real Estate 2610, 3610, 3630, 4110, 4120, 4130; Statistics 2100; Transportation 3115, 4720.

**Technology Concentration**

Accounting 3712, 4710, 4711-12, 4715, 4720, 4721-22, 4725-26-27, 4731-32, 4734, 4735, 4736-37, 4739, 4771-72-73, 4775, 4780, 4785, 4900, 4910, Audiology and Speech Pathology 4750; Civil Engineering 4330, 5110-20, 5270 Computer Science 3410, 4410, Electrical Engineering 4850; Environmental Engineering 3000; Geography 4720; Industrial Engineering 4150; Mechanical Engineering 4220; Planning 4100, 5230, 5450, Statistics 3450, Theatre 3321-22, 4341-42.

## Faculty

Professors: D.D. Hanson (Dean), M. Arch. Massachusetts Institute of Technology, D.C. Arch. Harvard; J.W. Fortey, Ph.D. Docteur d' Université de Tours (France); F. Greger, M. Arch. Pennsylvania; W.J. Lauer, M.S. Arch. Eng. Iowa State, R.M. Parkinson, J.D. N.Y.U.; W.S. Shell, M.S. Arch. Columbus.


1001 Introduction to Human and Environmental Properties and Transactions (4) Properties and concepts of developmental change and specific "building" processes; historical study of events of human activities and products in context to their contemporary design philosophies and technologies to the present.

1002 Visual Studies (4) Principles of functional organization and order introduced through examination of behavioral and physical properties of natural and artificial environments. Emphasis on space-spanning systems.

1004 Analytical Studies (4) Introduction to General Systems Theory in relation to environmental analysis and design. Covers theory and application of the general systems approach and introduces problem-solving techniques, statistical analysis and design methodologies.

1005 Historical Studies (4) Introduction to relationships of historical and cultural development of mankind and environment. Concept of aesthetics, ethics, and criticism. Methods of historical research and application. Application to study of selected classical, medieval, and modern examples.

1006 Physical Systems (4) Introduction to properties of space-spanning and environmental control systems. System properties analyzed include static and dynamic investigations of material composition component structures, and intra/inter system behavior. Anticipated sensory and environmental response to systems variation shall be studied.


2005 Historical Studies II (4) Concentrated examination of development of twentieth century design; architectural theory and products as derivative or counterpart to Industrial Revolution. Emergence of post-industrial era and contemporary development.


2014 Analytical Studies II (4) Introduction to basic research methods and to environmental problems; fundamentals of the scientific method for collecting, organizing, manipulating and displaying (communicating) a wealth of diverse data for research and evaluation purposes. Course objective is to qualify students with concepts and techniques to utilize electronic data processing technologies as a research tool.


2101 Pre-modern Survey I (4) Classical Tradition in architecture—Greek and Roman Architecture. Renaissance and Neo-classical revivals.

2102 Pre-modern Survey II (4) Medieval and Byzantine Architecture.

3011 Architectural Design Lab I (8) Controlled exercises designed to demonstrate integration and application of design theory and methodologies into design process. Exercises directed to aspects of architectural issues such as site analysis, and integration of multiple complex architectural systems into comprehensive architectural resolutions.

3012 Architectural Design Lab II (8) Experimental exercises designed to demonstrate integration and application of design theory and methodologies into a creative design process. Exercises directed to aspects of architectural issues such as site analysis and planning, facility programing and program analysis, and integration of multiple complex architectural systems into comprehensive architectural resolutions.

3013 Professional Practice I (4) Survey of legal responsibilities of architect in servicing contractual arrangements, administration, contract administration, codes and zoning regulations, liability and insurance facors in building delivery. Perreq: Third-year standing.

3014 Professional Practice II (4) Principles and methods of economics and management; project production and management, costs and analysis, budgetting, programming and construction management. Perreq: 3013.

3015 Service Practicum (16) Employment for one quarter in office of a registered architect or other projects approved by the school. Perreq: 3011 and 3012.

3101 American Architecture (4) Architecture in the United States since 1607; medieval, Neo-classical, and Greek Revival traditions; eclecticism.

3102 History of the City (4) Evolution of town planning theories, modern theory, city of today and tomorrow.

3110 Oriental Survey (4) Architecture of non-Western traditions. Perreq: 3113 Contemporary Architecture (4) Styles and theories from 1865 to present; design and technology; definition of architecture.

3115 Latin American Survey (4) Native and colonial architecture in Central and South America.

3120 Indigenous Traditions (4) Vernacular building traditions in non-European civilizations.

3125-26 History of Architectural Technology I, II (4, 1) History of construction techniques, hardware, materials and systems; t: before 1850, II: 1850 to present.

3130 History of Architectural Theory (4) Philosophies of science, the emergence of technology, and theories of design since 1500.

3135 Tennessee Architecture (4) Immigrant traditions, regional developments, national styles, contemporary architecture.

3137 Architecture Since 1945 (4) New directions and views of the future.

3140 Studies of Architectural Writing (4) Survey of European architectural writers from Pugin to the present; the relation between literature and design. May be repeated. Maximum credit, 8 hours.

3701-02 Application of Computer in Architecture (4, 1) Survey of computer applications in the architectural profession. Computer graphics; use of commercial programs and systems; program planning and implementation. Perreq: 3701 for 3702.

3712 Mathematical Models in Architecture (4) Utilization and development of mathematical methods in architectural science. Survey and classification of mathematical models of problems in architectural science, including numerical and methods of use of digital computer.

3910 Research Methods for Designers (4) General introduction to variety of research methods and techniques available to designer, appropriate for uncovering basic user requirements during design process. Perreq: 2000.

3920 Environmental Design Education: Problems, Practice and Structures (4) Focus directed at surveying existing models of learning, educational taxonomies, curricula goals, objectives and implementation formats, and methods of program evaluation. Role of existing architectural professional practice and its relation to design education explored. Required for teaching assistants in architecture. Perreq: Consent of instructor.

3930 Behavioral Approaches to Environmental Design (6) Major concern in the lecture content of this course is the effect of the built environment on human behavior. Particular emphasis will be placed upon the role of environmental factors in human development, learning, adaptation, stress and physiological and psychological life-cycle functions. Studio problems will explore the design of environments for children and environmental supports for various types of physical disabilities for people of all ages. Two credits for lecture and four credits for lab. Perreq: Consent of instructor.

3940 Behavioral Approaches to the Design of Prosthetic Devices and Environments (4) Study of standard features of the built environment are unsuitable to the everyday functioning of individuals with various types of physical disability; study of architectural barriers in relation to the physicially handicapped constitutes the course lecture content. Studio problems explore design of barrier-free environmental features and design of disability-specific environments and behavioral supports. Two credits for lecture and four credits for lab. Perreq: 3930 for non-architecture students.

4110 Aesthetics in Architecture (4) Architecture among the arts; theory and philosophy of space, imagination, design, and materials.

4115 Advanced Research Methods in Architectural History (4)

4120 Treatises (4) Vitruvius: Renaissance and Neo-classical treatises.

4125 Eastern European Architecture (4) Twentieth-century architecture in Russia, Czechoslovakia, Poland, Hungary, East Germany, Rumania, Bulgaria, Yugoslavia.

4130 Seminar in Medieval Architecture (4)

4135 Architecture and the Romantic Movement (4)
Architectural and critical literature of nineteenth century in England and United States.

4137 Forms of Utopia (4) Ideals, spaces, and places; proposals and programs which have formed urban design; successes and failures of its architectural forms.

4140 Criticism Seminar (4) Theories, function, and techniques of architectural criticism.

4150 Advanced Reading (4) Advanced studies in special topics of architectural history.

4160 Architects in Social Criticism (4) Writings which illuminate technological, political, and anthropological assumptions of some 19th- and 20th-century architects.

4170 Introduction to Preservation and Restoration (4) History and theory of restoration and preservation.

4175 Technology of Preservation (4) History of technology and materials, methods analysis and dating, techniques of preservation.

4180 Recording Historic Buildings (4) Techniques for drawing and documenting historic architecture.

4185 Contemporary Preservation Practice (4) History and theory of contemporary practice, preservation law.

4311 Historic Preservation Laboratory (8) Directed study of historic and historic significance. Techniques of preservation; research of historic methods of construction; and studies of viable uses. Rehabilitation, restoration, preservation, and adaptive uses. May be repeated. Maximum credit, 16 hours.

4312 Foreign Studies Laboratory (16) Travel, research, and laboratory projects conducted in various locations abroad. The programs may include service to lesser developed countries; research and design project related to program locations; lectures, seminars and critiques by distinguished individuals in the host country. Programs will vary.

4313 Media Laboratory (8) Special projects related to journalism, film making, exhibitions, publications and other media and media applications under the direction of faculty members. May be repeated. Maximum credit, 16 hours.

4320 Introduction to Site Planning (8) Analysis of site form and ecology, environmental assessment, social and psychological aspects of site locations and development, study of movement systems, program development, site design, including location and layout of streets and utilities, earthwork, site management and development.

4321-22-23 Macro Studies Laboratory I, II, III (8, 8, 8) Directed study of a large scale, complex nature with emphasis on reinforcing architecture of architectural design process and introducing principles and techniques used in urban and regional design and planning process. Prereq: 4320.

4330 Architecture Research Lab (8) Research projects on specific architecture subjects under the direction of faculty members.

4331-32-33 Micro Studies Laboratory I, II, III (8, 8, 8) Series of design exercises to demonstrate range of human response to varied composition of micro environmental elements and systems.

4340 Independent Studies Lab (1-8) Individual and group research projects under direction of faculty members. Credit adjusted to nature of problem and level of effort. May be repeated. Maximum credit, 24 hours.

4350 Visiting Lecturers Laboratory (8) Architectural design exercise to demonstrate range of visiting lecturers. Nature of project to be determined by visiting lecturer in charge. May be repeated. Minimum credit 4 hours.

4351 Build Laboratory (8) Design and construction under the direction of faculty member of small scale building project for a public service agency or organization. Work with client includes program, cost and analysis, material specification and ordering, sub-contracting, and on-site construction.

4352 Architectural Service Laboratory (8) Off-campus projects under direction of architect or related professional on the staff, member of public service organization or agencies of government. Subject matter but is directly related to problem-solving process.

4353 Development Laboratory (8) Directed studies in development of real property. Studies of use feasibility, economics, finance and marketability, environmental impact, social considerations and consequences.

4360 Remote Centers Laboratory (8) Program extension in remote locations of various tenor.

4370 Architecture-Engineering Laboratory (8) Directed research application in new structural concepts. Architectural projects of large scale and complex nature with emphasis on the engineering systems considering codes, economics, urban design, utility services, structure, environmental controls and construction.

4390 Interdisciplinary Laboratory (8) Action-oriented joint studies laboratory in environment-related project conducted in collaboration and undertaken by students and faculty both in and out of the School of Architecture.

4501 Management Design I (8) Using the lab situation and project simulation, study aspects of project management and construction management, the process of making decisions and the understanding of their ramifications; the concept of decisions, design and the process of delivery is main theme.

4502 Administrative Design I (8) Lab simulation of office experience in project planning and control, programming and preparation of contract documents.

4503 Management Design II (8) Advanced work in lab situation of the management aspects of architecture. Use of computer as a management tool and simulation of an office situation is conducted in the lab. Prereq: 4501.

4504 Administrative Design II (8) Lab simulation of project with emphasis on production, specifications, estimating, materials, and codes. Prereq: 4502.

4510 Project Management (4) Principles, methods, and application of project management to the total building process. Project manager, his function, responsibilities and activities investigated through case studies, job history reviews, and project simulation.

4515 Construction Management (4) Principles, methods, and application of construction management to the total building process. Project manager, function, responsibilities, and activities investigated through case studies, job history reviews, and project simulation.

4520 Professional Services (4) Marketing of architectural practice by study of cases, theories, public relations procedures and understanding sales of architectural services, both basic and comprehensive.

4525 Personnel Relations (4) History of practice of architecture emphasizing personnel policies, theories of personnel relations, benefits, and unionization.


4531 Architectural Practice I (4) Analysis, survey, and study of the architect's role in organizing of practices and financial arrangement of office structure.

4532 Architectural Practice II (4) Analysis and study of contracts, insurance, taxes, and the legal position and liabilities of architect.

4535 Advanced Contracts (4) Study of contractual problems relating to architect, owner, contractor and sub-contractor.

4540 Design Process, Decision Determination (4) Principles and theories of making decisions in relation to the design and construction of architectural activities during building process.

4545 Programming (4) Theories and procedures for writing programs emphasizing computer application and research and development.

4550 Codes and Zoning (4) Theory, review, and research of city, county, state, region, and national codes and zoning related to development of fire safety and building codes; history and development of zoning emphasizing architect's responsibility as related to specific project application.

4555 Cost Analysis (4) Methods and theories of estimating project cost and building cost with reference to present techniques. Research in new techniques of cost analysis.

4560 Specifications (4) Theory, analysis, and methods of specifications. Emphasis placed on development and research of specifications.

4585 Supervision (4) Theories, methods and site supervision during construction phase and construction administration.

4701-02 Contract Documents/Working Drawings (8, 8) Central role of contract documents in practice of architecture or engineering. Preparations, submission, interpretation, and administration of specifications and other documents for typical project. Prereq: Consent of instructor.

4710 Architectural Models (4) Introduction to use of models in architectural studies. Display models and military scales. Presentation and special effects, Structural models, laws of similitude, special materials, fabrication, load and deflection measurements, dynamic and wind tunnel testing, lighting studies using models. Air circulation tests. Prereq: Consent of instructor.

4711-12 Structural Design I, II (4, 4) Provides understanding of behavior, analysis and design of basic building structures. Structural and constructional aspects of building, including the structural design of building in steel, concrete, masonry and timber to satisfy loading and building code requirements. Prereq: 2013 or equivalent.

4715 Construction Economics (4) Construction economics of small, medium and large projects. Interest, annuities, sinking funds; depreciation and replacement; amortization; amortization inflation; real estate investment and speculation; syndicate loans, purchasing power and liquidity.

4721-22 Advanced Architectural Structures (4, 4) Philosophy of structural design in relation to material purpose and form. Advanced mathematical and experimental analysis of structures, including use of computer programs. Prereq: 3702 or equivalent.

4725-26-27 Structural Innovation and Design Research Lab (4-8, 4-8, 4-8) Theory and experimentation of building design utilizing innovative structural concepts and techniques. Basic structural concepts, space and form properties, and economic factors such as systems costs, and materials and procedures of design are emphasized. Students' activities will involve prototyping of innovative systems and implementation of design credit in 4th- and 5th-year standing or last quarter of 3rd-year standing with permission of instructor.


4733 Structural Design for Protection Against Ex-


4735 Advanced Design of Concrete Buildings (4) Precast and on-site concrete construction and maintenance. Foundations, floor and wall systems. Domes and shell roofs. PreReq: 3702 or equivalent.


4739 Aesthetics of Engineering Structures (4) Architecture in engineering; theory and utilization of appropriate design for large structures. Bridges, exhibition halls, power plants.

4741 System Theory, History and Methodology (4) Investigation of general system theory and system research methodology. Overview and analysis of system theory. PreReq: Consent of instructor.

4742 Types of Systems (4) Comprehensive examination of system types, concepts and approaches. Comparative analysis of unit assemblies, components, panels, boxes and self-help systems. Exploration of all building types, housing, schools, garages, hotels, dormitories, hospitals, etc., and their cultural ramifications. PreReq: 4741.


4751 Structural and Architectural Innovations (4) Exploration of new concepts, advances and innovative approaches to design, architecture and structural systems. Exploration of design drawings, detailing, contract documents, and specifications. Study of components, assemblies and systems for steel, wood, concrete and plastic systems. Use of computers, structurally and architecturally. PreReq: 4743.

4752 Mechanical Innovations (4) New technologi cal components and their application to heating, ventilating, air conditioning, plumbing and electrical systems. Concepts of mechanical components at factory and mechanical connections at the site, their application and use. Coreq: 4751.

4753 Construction and Manufacturing Innovations (4) Comprehensive analysis of new technology and innovations in manufacturing and construction with emphasis on production, transportation, export, distribution, precasting equipment, union, codes, costs, etc. Presentation of new ideas and conceptual drawing, factory assembly lines and site construction methods. Understanding of industrial engineering, construction management, computers, CPM, fast-tracking, prefabrication, and industrialization. PreReq: 4751 and 4752.

4761-62 Systems Design Laboratory I, II (8, 8) A vertical multi-disciplinary and design research laboratory and studio, integrating simultaneously, undergraduates, graduates, professionals, intra-disciplinary and inter-disciplinary Total systems ("software" and "hardware") approach to individual and group problems. 4761: Demonstrating, researching, probing and analyzing the problem and the system problem. Application of new ideas, approaches and concepts to design and systems. 4762: Architectural and with design systems, three dimensionally and in mock-ups, using new materials and techniques. Coordination of the total systems process.

4765 Thesis/System Laboratory (16) Independent problem undertaken by individual or group to which new or significant contribution to art and/or science of systems design, building and architecture. PreReq: Approval of the systems building coordination and the completion of the systems building core.


4785 Sound, Noise and Vibration Control in Buildings (4) Proven sound and vibration control techniques. Specific methods, procedures, and materials most effective in solving noise problems. PreReq: Audio & Speech Path. 4750 or Mechanical Engnr. 4220.

4850 Elementary Structural Matrix Methods (4) Introduction to the matrix methods of analysis of statically and statically indeterminate structures and vectors: development of member stiffness and flexibility matrices; assembly of structure stiffness and flexibility matrices. PreReq: Consent of instructor. (Same as Civil Engineering 4850 and Engineering Science and Mechanics 4850.)

4900 Aspects of Urban Environment (4) Interdisciplinary course in urban problems. PreReq: Consent of instructor. (Same as Urban Design Services 4900, Political Science 4900, Psychology 4900 and Real Estate 4900.)

4910 Architectural Photography (4) Use of photography as a design research and presentation medium. Emphasis on architectural photography using black and white media.

4920 Advanced Architectural Photography (4) Application of special photographic techniques with emphasis on digital image capturing and processing. PreReq: Consent of instructor.

4940 Proxemics (4) Seminar for graduate students & upper division students. Introduction to proxemic research. Definition of proxemic variables. Proxemic studies include social distance, personal space, and the identification of egocentric categories. Observer bias and methods of bias reduction. Members of seminar required to design, conduct, and present original proxemic research. PreReq: 2000 or consent of instructor.


ACCELERATED CORE COURSE DESCRIPTIONS

4020 Accelerated Visual Studies (4) Identification and application of theories and methodologies of graphics analysis and communication principles, i.e., principles of visual coding and ordering applicable to behavioral descriptive analysis. Selective exercises and projects.

4021 Accelerated Basic Design and Analysis I (4) Investigation of the behavior of complex physical systems. Theories and methodologies of optimization applicable to design decision-making processes and design methodologies. Contextually, study trends emergence of current concern to student through controlled and experimental design exercises. PreReq: 4020.

4022 Accelerated Analytical Studies I (4) General system theory and methodology applicable to design decision-making processes and design methodologies. Contextually, study trends emergence of current concern to student through controlled and experimental design exercises. PreReq: 4020.

4023 Accelerated Basic Design and Analysis II (4) Investigation of human response to varied configurations of built environments. Knowledge of human response to human behavior and activity patterns applied through design process to create new environmental forms subjected to performance evaluation measured to anticipated response. Experimental design exercises will include varied problem types and scales. Experiment design studies of human response to specific research methods and design methodologies. PreReq: 4020 and 4022. Coreq: 4024.

4042 Accelerated Analytical Studies II (4) Basic research methods and procedures for solving architectural design problems. Presentation of information and skills necessary for collecting, ordering, manipulating, analyzing, predicting and reporting data and results. Research and evaluation purposes. Objective is to be qualified with fundamental concepts and techniques to utilize potential of electronic data processing technologies as a research tool. In addition to the regular lecture series of 2014, students are required independently to research aspects of study area for presentation to an accelerated seminar supplement. PreReq: 4022. Coreq: 4023.

4025 Accelerated Historical Studies I (4) Re-enactment of historical and cultural development of the man-made environment. Concepts of ethics, aesthetics and criticism and will be studied through the use of historical research and analysis are introduced as a means of studying the classical tradition of architecture. In addition to the regular lecture series of 1005, students are required independently to research aspects of study area for presentation to the accelerated seminar supplement. PreReq: Admission to the accelerated core program.

4026 Accelerated Historical Studies II (4) Concentrated examination of development of twentieth-century design and architectural theory and practice. Derivative of counterpoint to the study of historical development. Events occurring in specific time frames of preindustrial and industrial periods are contextualized to demonstrate potential developments in the emerging post-industrial era. In addition to the regular lecture series of 2006, students are required independently to research aspects of study area for presentation to the accelerated seminar supplement. PreReq: Admission to the accelerated core program.

4027 Accelerated Man-Environment Systems (4) Study of causal, descriptive, behavioral and predictive properties of human and environmental systems. Development of their derivative or counterpoint to the study of historical development. Events occurring in specific time frames of preindustrial and industrial periods are contextualized to demonstrate potential developments in the emerging post-industrial era. In addition to the regular lecture series of 2005, students are required independently to research aspects of study area for presentation to the accelerated seminar supplement. PreReq: Admission to the accelerated core program.

4029 Accelerated Professional Practice (4) Examination of legal responsibilities of architect in servicing contractual agreements; contract documents, contract administration, code enforcement, insurance responsibilities, project management, economics and management; project production and management, cost analysis, budgeting, programming and construction document management. PreReq: Admission to the accelerated core program.
College of Business Administration

C. Warren Neel, Acting Dean
Francis A. Chamblin, Assistant Dean
for Graduate Programs
Liston M. Fox, Assistant Dean

The College of Business Administration seeks to prepare men and women for positions as executives and specialists in business. Seeing the business firm as operating in a dynamic social, political, and economic environment, the College has four functions with respect to its purpose: (a) to offer its students the firm base of liberal education consistent with that possessed by all educated people; (b) to present to its students business-oriented instruction in professional fields so that they may understand the business process as a whole and the function of specific areas of business; (c) to associate closely with other colleges of the University in order to enrich the understanding of its students by offering an opportunity to learn from psychology, sociology, and other areas related to the behavior of people; (d) to develop in its students the ability to see their four years in the College as the initial step to a lifetime commitment to personal growth and intellectual maturity through continuing education.

The College centers its teaching, subject matter, and research activity around two themes: the manager as a planner, decision maker, implementer and controller of operations in a business firm; and the manager as an analyst of, an adapter to, the larger social, economic, and political environment in which the firm exists.

The College has one goal: to have each student leave school with a reasonably articulate and coherent, though flexible and ever-developing, personal philosophy of business; an understanding of the scientific, ever-changing technological world; and a firm awareness of the social responsibility as a future executive and enlightened wielder of power.

The College of Business Administration has been a member of the American Assembly of Collegiate Schools of Business since 1941.

Transfer Admission

All students who have attempted 36 or more quarter hours of college-level work must have a grade point average of at least 2.0 to be eligible to transfer into the College of Business Administration. This requirement applies both to students transferring from other institutions (including those of The University of Tennessee System) and to those transferring from other colleges and schools of The University of Tennessee, Knoxville.

The College of Business Administration stands ready to assist any student seeking a business education, regardless of credit hours attempted or earned, and regardless of the grade point average. All such students should be referred to the Office of the Dean for counseling and discussion.

Student Advising Center

The College of Business Administration maintains a Student Advising Center. The Center is staffed with full-time academic advisers to assist the freshman and sophomore students on an individual basis with their programs. Junior and senior students are assigned to advisers from the faculty of the student’s selected major. The objective of working with students individually is to assist them in their own particular needs for academic information and to prepare them to answer their own questions and concerns.

Center for Business and Economic Research

The staff of the Center for Business and Economic Research engages in studies of the business and economic environment in Tennessee, the Southeast, and the nation. The Center serves the business community, state government, individuals, and the University through dissemination of information and aids the faculty in preparing research proposals. Staff members conduct research in regional economics, public finance, demography and related socioeconomic problems. The Center publishes results of its research and that of others, in monograph form, so that significant developments in the various business disciplines can achieve widespread exposure. In addition, the Center staff does contract research on business and economic problems for governmental organizations and private industry. As periodicals, the Center publishes the Tennessee Statistical Abstract, the Tennessee Survey of Business, and the Tennessee Pocket Data Book.

The Center is a member of the Southeastern Income Conference and the Association for University Business and Economic Research.

Tennessee Executive Development Program

The Tennessee Executive Development Program (TEDP) is designed to provide extensive continuing educational opportunities for executives from firms and organizations in Tennessee, the South, and nationally. The major objective of the program is to prepare and develop executives for increasingly higher levels of management responsibility and to sharpen existing executive skills needed for comprehensive decision making and leadership. Other major aims of the TEDP are to teach the fundamentals of analytical thinking and the use of the decision tools, and to examine the economic, political, technological, and other environmental factors affecting the firm’s operations.

The TEDP limits enrollment to 32 participants who live on campus for a total of four weeks spread over a three-month period. The fall Executive Seminar brings participants and wives of all TEDP classes.
back to campus for sessions on relevant topics and current key issues. The Executive Seminar offers a continuing opportunity for personal growth and professional development. This arrangement provides executives with extensive opportunities to exchange ideas and operational concepts with contemporary business leaders and with TEDP faculty as well. The faculty for the TEDP consists of senior professors who teach business-related subjects in the University's graduate programs and nationally recognized professors of other institutions. Each participating faculty member has deep experience in either consultation or actual operations in business and industry. The TEDP faculty is augmented by outstanding practitioners in their fields of business and industry.

Cooperative Program in Business

The College of Business Administration offers qualified students, who have completed at least one year of work at the University and whose grades conform to the standards set by the College, the opportunity to participate in the Cooperative Program in Business which, under the direction of a coordinator, combines classroom study with practical experience. Effort is made to place students on jobs which offer maximum educational and financial advantages. Students alternate quarterly between work in business or industry and study at the University.

The Cooperative Program gives the student an opportunity for practical experience, develops a sense of responsibility and cooperation, helps him to select a vocation, creates greater interest and incentive in his studies, enables him to earn part of expenses, and may lead to permanent employment after graduation. The student may earn a maximum of nine hours elective credit for field work but must do a satisfactory job as determined by the employer and coordinator, including reports covering job experiences.

Preparation for Teaching

Students enrolled in the College of Business Administration desiring to teach business or distributive subjects in secondary schools of Tennessee may follow majors in accounting, office administration, or marketing and also meet the requirements for certification by the State Department of Education.

Students should consult an adviser in business or distributive education regarding the proper courses.

Master's and doctor's degree programs leading to teaching in junior colleges and senior colleges or universities are available.

Course Load

The normal course load for a quarter is 15-17 hours. The maximum number of hours which may be taken by a freshman is 18. Other students may take 19. In unusual circumstances permission to take a course load in excess of these maximums may be granted by the Assistant Dean for Undergraduate Programs in Business Administration.

Requirements for All Curricula

A student must complete the curriculum outlined by the department in which he is majoring in order to receive a degree. Where no course number is specified or where a choice is allowed, the student will fulfill the requirement by selecting from specified courses. Where electives are provided, the courses taken must meet the approval of the adviser. Nondepartmental electives are considered as courses outside the student's major department. No more than 42 hours are permitted in any one subject area.

A maximum of thirty credit hours of unconventional graded (S/NC, P/F, P, etc.) courses may applied to the total credit hours required for a degree of Bachelor of Science in Business Administration. Such credit hours may be used to meet only the requirements identified in the curriculum as "nonbusiness electives," "nondepartmental electives," "business and/or nonbusiness electives," and "business electives."

A Management Science Option is available for students with facility and interests in mathematical applications to business. See catalog for details.

NOTE: Students are advised to consult the University's degree requirements as stated in the front section of this catalog as well as the requirements for the college or department.

BUSINESS CORE REQUIREMENTS

The following core courses are required in all business curricula: Accounting 2110-20, 2210; Business Administration 4430, Business Law 4110 and 4120; Economics 2110-20-30; Finance 3110-20-30; Industrial Management 3010, 3110 (3111 for Industrial Management and Personnel Management majors); Marketing 3110-20; Office Administration 2750 or Computer Science 1410 (3150 for Management Science Option) and Statistics 2100 and three hours upper-division statistics elective or as designated by the curriculum (3450-80 for Management Science Option).

ENGLISH REQUIREMENT

The English requirement can be fulfilled by English 1510-20 with two hours selected from English 2510-20-30, 2540, 2560-70-80, 2590, 2660-70-80. Speech 2311, unless specifically required by a curriculum, may be used to satisfy four of the elective English hours required. English courses beyond 1000-level may be taken in any order. Students making a B average in freshman English are permitted to substitute for the 2000-level courses listed above any upper-division courses which the Department of English will allow them to take.

NATURAL SCIENCE REQUIREMENT

The Natural Science requirement can be fulfilled by an eight-hour sequence (any two eight-hour sequences for the Industrial Management and the Personnel Management curricula and any eight-hour sequence plus any additional four hours of natural science for the Business Education curriculum) in any of the following fields: astronomy, biology, botany, chemistry, geology, or physics.

SOCIAL SCIENCE REQUIREMENT

The social science requirement can be fulfilled by taking courses in the following fields: anthropology, classics, geography, history, human services, philosophy, political science, psychology, religious studies, and sociology.

COMPUTER SCIENCE REQUIREMENT

A computer programming course satisfies the requirement; Computer Science 1410 or Office Administration 2750 is recommended.

Accounting

The curriculum provides preparation for professional accounting careers in public accounting, industry, and government. Graduates are eligible for the CPA examination in Tennessee.

Transfer students with 9 quarter hours of introductory accounting will receive 6 hours of credit in Accounting 2110-20 and 3 hours of lower-division accounting credit. These students must take as one of their technical electives an upper-division course approved by the accounting department adviser, and it must not be an accounting course.

To graduate with a major in accounting, a minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at the University of Tennessee, Knoxville. These must include a minimum of 15 hours of accounting courses numbered 3000 or above and must include Accounting 4110, 4140, 4430, and 4630.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics 1540-50-60</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Natural Science Electives</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Nonbusiness Electives</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English Electives</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Economics 2110-20-30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 2750 or CS 1410</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Statistics 2100</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Computer Science Elective</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Management Science 2110-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Social Science Elective</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Computer Science 3410,3910</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Junior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounting 3110-20-30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 3220</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 4630,4640</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Economics Elective</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Finance 3110-20-30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Industrial Management 3010</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Marketing 3110-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Statistics 3410</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Senior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounting 4110</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 4430, 4140</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Technical Electives</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 4430</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Business Law 4110-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Business and/or Nonbusiness Electives</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Statistics 3520</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

TOTAL: 187 hours

*See page 73.

May be accounting electives or other electives specified by accounting department adviser.
### Banking

Students planning careers in management of commercial banks and branches, or as trust officers, investment or loan officers, or in savings or industrial banks, the Federal Reserve System, international monetary institutions, or state and federal bank regulatory agencies may major in banking. To graduate with a major in banking, a minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at the University of Tennessee, Knoxville. These must include a minimum of 12 hours of finance courses.

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>English 1510-20</td>
</tr>
<tr>
<td></td>
<td>Mathematics 1540-50-60 or 1840-50-60</td>
</tr>
<tr>
<td></td>
<td>Natural Science Electives</td>
</tr>
<tr>
<td></td>
<td>Social Science Electives</td>
</tr>
<tr>
<td></td>
<td>Economics 2110</td>
</tr>
<tr>
<td>Sophomore</td>
<td>English Elective</td>
</tr>
<tr>
<td></td>
<td>Economics 2120-30</td>
</tr>
<tr>
<td></td>
<td>Computer Science Elective</td>
</tr>
<tr>
<td></td>
<td>Statistics 2100</td>
</tr>
<tr>
<td></td>
<td>Social Science Elective</td>
</tr>
<tr>
<td></td>
<td>Business Electives</td>
</tr>
<tr>
<td></td>
<td>Accounting 2110-20, 2210</td>
</tr>
<tr>
<td></td>
<td>Accounting 2110-20, 2210</td>
</tr>
<tr>
<td></td>
<td>Business Administration 3101</td>
</tr>
<tr>
<td></td>
<td>Teaching Field</td>
</tr>
<tr>
<td></td>
<td>Health Science 3101, Public Health 3101, or Nutrition 1230</td>
</tr>
<tr>
<td></td>
<td>Physical Education Elective</td>
</tr>
<tr>
<td></td>
<td>Statistics 2100</td>
</tr>
<tr>
<td>Junior</td>
<td>Philosophy, Anthropology, or Upper-Division History Elective</td>
</tr>
<tr>
<td></td>
<td>Industrial Management 3101, 3110</td>
</tr>
<tr>
<td></td>
<td>Marketing 3110-20</td>
</tr>
<tr>
<td></td>
<td>Finance 3110-20-30</td>
</tr>
<tr>
<td></td>
<td>Business Administration 4110, 4210</td>
</tr>
<tr>
<td></td>
<td>Business Administration 4430</td>
</tr>
<tr>
<td></td>
<td>Education C&amp;I 4710-20</td>
</tr>
<tr>
<td></td>
<td>and Business Education 4610</td>
</tr>
<tr>
<td></td>
<td>Office Administration 4210, 4320</td>
</tr>
<tr>
<td></td>
<td>Business Education 4120</td>
</tr>
<tr>
<td></td>
<td>Office Administration 4430</td>
</tr>
<tr>
<td></td>
<td>Economics Elective</td>
</tr>
<tr>
<td></td>
<td>Health and P.E. Elective</td>
</tr>
<tr>
<td>Senior</td>
<td>Business Law 4110-20</td>
</tr>
<tr>
<td></td>
<td>Business Administration 4430</td>
</tr>
<tr>
<td></td>
<td>Finance 4800*, 4900</td>
</tr>
<tr>
<td></td>
<td>Finance 4510, 4520</td>
</tr>
<tr>
<td></td>
<td>Finance 4510-50</td>
</tr>
<tr>
<td></td>
<td>Finance Elective</td>
</tr>
<tr>
<td></td>
<td>Business Electives</td>
</tr>
<tr>
<td></td>
<td>Business and/or Nonbusiness Electives</td>
</tr>
</tbody>
</table>

### Business Education

This program is offered in cooperation with the Department of Vocational-Technical Education in the College of Education. The program meets requirements for certification in business subjects as approved by the State Department of Education. At least a C average must be made in each endorsement area in business for which a student is to be recommended.

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>English 1510-20</td>
</tr>
<tr>
<td></td>
<td>Mathematics 1540-50-60 or 1840-50-60</td>
</tr>
<tr>
<td></td>
<td>Natural Science Electives</td>
</tr>
<tr>
<td></td>
<td>Office Administration 2110-20-30</td>
</tr>
<tr>
<td></td>
<td>Anthropology Elective</td>
</tr>
<tr>
<td>Sophomore</td>
<td>Philosophy Elective</td>
</tr>
<tr>
<td></td>
<td>English Language Elective</td>
</tr>
<tr>
<td></td>
<td>Accounting 2110-20, 2210</td>
</tr>
<tr>
<td></td>
<td>Economics 2110-20-30</td>
</tr>
<tr>
<td></td>
<td>Computer Science Elective</td>
</tr>
<tr>
<td></td>
<td>Psychology 2500</td>
</tr>
<tr>
<td></td>
<td>Teaching Field</td>
</tr>
<tr>
<td></td>
<td>Health Science 3101, Public Health 3101, or Nutrition 1230</td>
</tr>
<tr>
<td></td>
<td>Physical Education Elective</td>
</tr>
<tr>
<td></td>
<td>Statistics 2100</td>
</tr>
<tr>
<td>Junior</td>
<td>Philosophy, Anthropology, or Upper-Division History Elective</td>
</tr>
<tr>
<td></td>
<td>Industrial Management 3101, 3110</td>
</tr>
<tr>
<td></td>
<td>Marketing 3110-20</td>
</tr>
<tr>
<td></td>
<td>Finance 3110-20-30</td>
</tr>
<tr>
<td></td>
<td>Business Education 4130, 4210</td>
</tr>
<tr>
<td></td>
<td>Office Administration 3110</td>
</tr>
<tr>
<td></td>
<td>Teaching Field</td>
</tr>
<tr>
<td></td>
<td>Educational Psychology 3810</td>
</tr>
<tr>
<td></td>
<td>Education C&amp;I 3010 and 3020</td>
</tr>
<tr>
<td>Senior</td>
<td>Statistics Upper-Division Elective</td>
</tr>
<tr>
<td></td>
<td>Business Law 4110-20</td>
</tr>
<tr>
<td></td>
<td>Business Administration 4430</td>
</tr>
<tr>
<td></td>
<td>Education C&amp;I 4710-20</td>
</tr>
<tr>
<td></td>
<td>and Business Education 4610</td>
</tr>
<tr>
<td></td>
<td>Office Administration 4320</td>
</tr>
<tr>
<td></td>
<td>Business Education 4120</td>
</tr>
<tr>
<td></td>
<td>Office Administration 4430</td>
</tr>
<tr>
<td></td>
<td>Economics Elective</td>
</tr>
<tr>
<td></td>
<td>Health and P.E. Elective</td>
</tr>
</tbody>
</table>

### Finance

Curricula in the finance department include those in finance, banking, insurance, and real estate and urban development. Areas of concentration in the finance curriculum include business finance and financial management, investments and security analysis, public finance and fiscal policy, and monetary theory and policy. To graduate with a major in finance, a minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at the University of Tennessee, Knoxville. These must include a minimum of 12 hours of finance courses.

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>English 1510-20</td>
</tr>
<tr>
<td></td>
<td>Mathematics 1540-50-60 or 1840-50-60</td>
</tr>
<tr>
<td></td>
<td>Natural Science Electives</td>
</tr>
<tr>
<td></td>
<td>Social Science Electives</td>
</tr>
<tr>
<td></td>
<td>Economics 2110</td>
</tr>
<tr>
<td>Sophomore</td>
<td>English Elective</td>
</tr>
<tr>
<td></td>
<td>Accounting 2110-20, 2210</td>
</tr>
<tr>
<td></td>
<td>Economics 2120-30</td>
</tr>
<tr>
<td></td>
<td>Computer Science Elective</td>
</tr>
<tr>
<td></td>
<td>Statistics 2100</td>
</tr>
<tr>
<td></td>
<td>Philosophy 2510</td>
</tr>
<tr>
<td></td>
<td>Social Science Electives</td>
</tr>
<tr>
<td></td>
<td>Nonbusiness Elective</td>
</tr>
<tr>
<td>Senior</td>
<td>Finance 3110-20-30</td>
</tr>
<tr>
<td></td>
<td>Statistics 3220 or 4310</td>
</tr>
<tr>
<td></td>
<td>Marketing 3110-20</td>
</tr>
<tr>
<td></td>
<td>Industrial Management 3101, 3110</td>
</tr>
<tr>
<td></td>
<td>Economics 3110-20, Economics Elective, or Economics 3111-12, 3120</td>
</tr>
<tr>
<td></td>
<td>Economics Electives</td>
</tr>
<tr>
<td></td>
<td>Business and/or Nonbusiness Electives</td>
</tr>
<tr>
<td></td>
<td>Finance 3110-20-30</td>
</tr>
<tr>
<td></td>
<td>Business Administration 4430</td>
</tr>
<tr>
<td></td>
<td>Economics Electives</td>
</tr>
<tr>
<td></td>
<td>Business and/or Nonbusiness Electives</td>
</tr>
</tbody>
</table>

### Economics

The Department of Economics offers specialized courses for those who desire to serve as economic analysts and specialists in business, education, government, and various international agencies. Students majoring in economics, particularly those desiring to teach, should plan, whenever possible, to take graduate work.

To graduate with a major in economics, a minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at the University of Tennessee, Knoxville. These must include a minimum of 15 hours of economics courses.

Students may also elect to major or minor in economics in the College of Liberal Arts. See page 193 for further information on the B.A. curriculum.
Industrial Management
This major is designed for students interested in the field of business and manufacturing management.
In general, the curriculum has been developed to include a judicious combination of technical and business courses in order to prepare the graduate for employment in an industrial enterprise.
Job opportunities in this field include industrial purchasing, materials control, quality control, production control, methods analysis, and positions as foremen and production management trainees. Internships in industry are available under the Cooperative Program.

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1510-20</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Math 1540-50-60 or 1840-50-60</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>*Natural Science Electives</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>*Social Science Electives</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>*Sophomore</td>
<td>Hours</td>
<td>Credit</td>
</tr>
<tr>
<td>*English Electives</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Accounting 2110-20, 2210</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2120-30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>*Computer Science Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Statistics 2100</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Management Science 2110-30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Psychology 2500</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>*Natural Science Elective</td>
<td>-</td>
<td>4</td>
</tr>
</tbody>
</table>

| Junior | Hours | Credit |
| Industrial Management 3010, 3111 | 3 | 3 |
| Finance 3110-20-30 | 3 | 3 |
| Marketing 3110-20 | 3 | 3 |
| Economics Electives | 3 | 3 |
| Office Administration 4310 or 4320 | 3 | |
| Statistics Upper-division Elective | - | 3 |
| Statistics Elective | 3 | |
| Nonbusiness Electives | 3 | 3 |

| Sophomore | Hours | Credit |
| Business Law 4110-20 | 3 | 3 |
| Business Administration 4430 | 3 | |
| Finance, Insurance, or Real Estate Electives | 3 | 3 |
| Accounting Electives | 3 | 3 |
| Marketing or Transportation Elective | 3 | |
| Business and/or Nonbusiness Electives | 4 | 7 |

| Senior | Hours | Credit |
| Finance 4560-60 | 3 | 3 |
| Business Administration 4430 | - | 3 |
| Business Law 4110-20 | 3 | 3 |
| *Economics Elective | 4 | |
| Mathematics 1840-50-60 | 4 | 4 |
| *Natural Science Electives | 4 | 4 |
| *Social Science Electives | 4 | 4 |
| Economics 2110 | - | 3 |
| *Sophomore | Hours | Credit |
| *English Elective | 4 | |
| *Economics Elective | 3 | |
| Accounting 2110-20, 2210 | 3 | 3 |
| Statistics 2100 | - | 3 |
| *Computer Science Elective | - | 3 |
| *Social Science Elective | 4 | |
| Nonbusiness Electives | 6 | 6 |

| Junior | Hours | Credit |
| Finance 3110-20-30 | 3 | 3 |
| Industrial Management 3010, 3110 | 3 | 3 |
| Marketing 3110-20 | 3 | 3 |
| Economics Electives | 3 | 3 |
| *Natural Science Electives | 3 | |
| *Social Science Electives | - | |
| Economics 2110 | - | 3 |
| *Sophomore | Hours | Credit |
| *English Elective | 4 | |
| Speech 2311 | - | 4 |
| Accounting 2110-20, 2210 | 3 | 3 |
| Economics 2120-30 | 3 | 3 |
| *Computer Science Elective | 3 | |
| Statistics 2100 | 3 | |
| Management Science 2110-30 | 3 | 3 |
| Psychology 2500 | - | 4 |
| *Natural Science Elective | - | 4 |
| Industrial Management 3010, 3111 | 3 | 3 |
| Finance 3110-20-30 | 3 | 3 |
| Marketing 3110-20 | 3 | 3 |
| Economics Electives | 3 | 3 |
| Office Administration 4310 or 4320 | 3 | |
| Statistics Upper-division Elective | - | 3 |
| Statistics Elective | 3 | |
| Nonbusiness Electives | 3 | 3 |

| Senior | Hours | Credit |
| Business Law 4110-20 | 3 | 3 |
| Business Administration 4430 | 3 | |
| Industrial Management 4410-20 | 3 | 3 |
| Business and/or Nonbusiness Electives | 9 | 6 |
| Industrial Management UD Electives | - | 6 |

General Business
This major is intended for those who desire a broad business background without extensive concentration in any single business field. To that end it includes advanced work beyond the introductory courses in accounting, economics, finance, personnel management, marketing, statistics, and transportation as specified below.
To graduate with a major in general business, a minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at the University of Tennessee, Knoxville. These must include a minimum of 12 hours of accounting, economics, and finance courses.

| Freshman | Hours | Credit |
| English 1510-20 | 4 | 4 |
| Mathematics 1540-50-60 or 1840-50-60 | 4 | 4 |
| Natural Science Electives | 4 | 4 |
| Social Science Electives | 4 | 4 |
| Economics 2110 | - | 3 |

| Sophomore | Hours | Credit |
| English Elective | 4 | 4 |
| Speech 2311 | - | 4 |
| Accounting 2110-20, 2210 | 3 | 3 |
| Economics 2120-30 | 3 | 3 |
| *Computer Science Elective | 3 | |
| Statistics 2100 | 3 | |
| Management Science 2110-30 | 3 | 3 |
| Psychology 2500 | - | 4 |
| *Natural Science Elective | - | 4 |

| Junior | Hours | Credit |
| Industrial Management 3010, 3111 | 3 | 3 |
| Finance 3110-20-30 | 3 | 3 |
| Marketing 3110-20 | 3 | 3 |
| Economics Electives | 3 | 3 |
| Office Administration 4310 or 4320 | 3 | |
| Statistics Upper-division Elective | - | 3 |
| Statistics Elective | 3 | |
| Nonbusiness Electives | 3 | 3 |

| Sophomore | Hours | Credit |
| Business Law 4110-20 | 3 | 3 |
| Business Administration 4430 | 3 | |
| Industrial Management 4410-20 | 3 | 3 |
| Business and/or Nonbusiness Electives | 9 | 6 |
| Industrial Management UD Electives | - | 6 |

Insurance
The insurance major is for students planning careers in business risk management, insurance company and bureau administration, actuarial work, pension administration, life underwriting, estate planning, property-casualty agency management, insurance consulting, loss adjustment, and state regulation of insurance. Graduates are eligible to take the national examinations for the C.U. or C.P.C.U. designation.
To graduate with a major in Insurance, a minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at the University of Tennessee, Knoxville. These must include a minimum of 12 hours of insurance courses.

| Freshman | Hours | Credit |
| English 1510-20 | 4 | 4 |
| English Elective | 4 | 4 |
| Mathematics 1540-50-60 or 1840-50-60 | 4 | 4 |
| *Natural Science Electives | 4 | 4 |
| *Social Science Electives | 4 | 4 |
| Economics 2110 | - | 3 |

| Sophomore | Hours | Credit |
| *English Elective | 4 | |
| *Economics Elective | 3 | |
| Accounting 2110-20, 2210 | 3 | 3 |
| Statistics 2100 | - | 3 |
| *Computer Science Elective | - | 3 |
| *Social Science Elective | 4 | |
| Nonbusiness Electives | 6 | 6 |

| Junior | Hours | Credit |
| Finance 3110-20-30 | 3 | 3 |
| Industrial Management 3010, 3110 | 3 | 3 |
| Marketing 3110-20 | 3 | 3 |
| Economics Electives | 3 | 3 |
| Office Administration 4310 or 4320 | 3 | |
| Statistics Upper-division Elective | - | 3 |
| Statistics Elective | 3 | |
| Nonbusiness Electives | 3 | 3 |

Logistics
Business logistics is recommended for students who desire to prepare for employment in physical distribution management or planning with industrial or marketing organizations. The overall Transportation-Business Logistics program also prepares students for the examination waiver program of the American Society of Traffic and Transportation. A number of scholarships for this curriculum are available.
To graduate with a concentration in logistics, a minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at the University of Tennessee, Knoxville. These must include a minimum of 21 hours of transportation courses.

| Freshman | Hours | Credit |
| English 1510-20 | 4 | 4 |
| Mathematics 1540-50-60 | 4 | 4 |
| Economics 2110 | - | 3 |
| *Natural Science Electives | 4 | 4 |
| *Social Science Electives | 4 | 4 |
| Nonbusiness Electives | 3 | 6 |

*See page 73.
*To be taken when the topic is Insurance.
### Marketing
This major is designed to prepare students for careers in marketing with companies engaged in the marketing of consumer and industrial goods and their distribution by manufacturers, wholesalers, and retailers. The curriculum trains students for positions in sales, advertising, promotion, research, and marketing management. The integrated sequence of courses enables students to obtain broad training in the analysis of marketing decision problems.

To graduate with a major in marketing, a minimum of 30 quarter hours of required upper-division courses must be completed in residence at the University of Tennessee, Knoxville. These must include the following required marketing courses:
- 3210, 4210, 4510, 4650, 4710.

### Office Administration
Students entering the field of office administration may choose a specialized secretarial program or prepare for supervisory, administrative or managerial positions in the office. Students following the office administration major may meet teacher certification requirements by taking the appropriate education courses in consultation with the faculty advisor.

To graduate with a major in office administration, a minimum of 30 quarter hours of required upper-division courses must be completed in residence at the University of Tennessee, Knoxville. For office administration-secretarial, these must include Office Administration 4410, 4420, and 4430. For office administration-general, these must include a minimum of nine hours of office administration courses, including 4430.
training and earn a degree. All courses taken in this program have full University credit and may be applied toward a degree. A certificate may be awarded to students who have completed the program with an overall average of at least 2.0, an average of 2.2 in office administration, and within the first 120 hours of credit. Information regarding the recommended sequence of courses may be obtained from the office of the department head.

This "short course" is planned for six quarters of work and may be started at the beginning of any quarter.

**Subject** | **Hours** | **Credit**
--- | --- | ---
Office Adm. 2120-30-40 | 6 | 1
Office Adm. 2310-20-30, 4410-20 | 15 | 2
English 1510-20 | 8 | 3
English literature | 4 | 3
Business Adm. 1110 (General Business) | 3 | 4
Office Adm. 3210 (Office Machines) | 3 | 5
Office Adm. 4710 or Computer Science 2410 | 3 | 6
Office Adm. 4310 (Business Letter Writing) | 3 | 7
Office Adm. 4430 | 3 | 8
Accounting 2110-20 | 6 | 9
Economics 2110-20 | 6 | 10
Social Science | 6-8 | 11
Psychology 2520 | 4 | 12
Mathematics 1540 | 4 | 13
Physical Education | 2-4 | 14
Music, Art, Health, or Related Art | 3-4 | 15
Electives | 6-10 | 16

**TOTAL: 90 hours**

---

### Personnel Management

This major is designed for students who wish to prepare for employment in industrial personnel administration. Job opportunities range from general personnel work in small companies to specialized fields such as employment, wage and salary administration, job evaluation, training, and labor relations in larger enterprises.

**Subject** | **Hours** | **Credit**
--- | --- | ---
English 1510-20 | 4 | 1
Mathematics 1540-50-60 or 1840-50-60 | 4 | 2
Natural Science Electives | 4 | 3
Social Science Electives | 4 | 4
Economics 2110 | - | 5

### Sophomore

**Subject** | **Hours** | **Credit**
--- | --- | ---
English Electives | 4 | 1
Economics 2110-20-30 | 3 | 2
Accounting 2110-20, 2210 | 3 | 3
Computer Science Elective | 3 | 4
Statistics 2100 | - | 5
Management Science 2110-20 | 3 | 6
Psychology 2550 | - | 7
Natural Science Elective | - | 8

**TOTAL: 39 hours**

---

### Junior

**Subject** | **Hours** | **Credit**
--- | --- | ---
Industrial Management 3010, 3110 | 3 | 1
Finance 3110-20-30 | 3 | 2
Statistics 3410 | 3 | 3
Marketing 3110-20 | 3 | 4
Accounting 3210 | 3 | 5
Industrial Management Upper-Division Electives | - | 6
Industrial Engineering 3210 | 3 | 7
Nonbusiness Electives | 3 | 8

**TOTAL: 33 hours**

### Senior

**Subject** | **Hours** | **Credit**
--- | --- | ---
Business Law 4110-20 | 3 | 1
Business Administration 4430 | 3 | 2
Industrial Management 4530-20 | 3 | 3
Marketing 3210-20 | 3 | 4
Industrial Management Upper-Division Electives | - | 5
Nonbusiness Electives | 3 | 6

**TOTAL: 54 hours**

---

### Real Estate and Urban Development

This major is designed for students who are interested in the many fields of business and government where real estate is of significance. Such fields include real estate brokerage, appraisal, taxation, law, property management, real estate development, mortgage lending and mortgage banking, construction, government loan guarantees, and insurance.

To graduate with a major in real estate and urban development, a minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at the University of Tennessee, Knoxville. These must include a minimum of 12 hours of real estate and urban development courses.

**Subject** | **Hours** | **Credit**
--- | --- | ---
English 1510-20 | 4 | 1
Economics 2110 | 4 | 2
Mathematics 1540-50-60 | 4 | 3
Natural Science Electives | 4 | 4
Social Science Electives | 4 | 5
Industrial Management 3010, 3110 | - | 6
Nonbusiness Electives | - | 7

**TOTAL: 21 hours**

---

### See page 73.
### Statistics

A major in statistics is recommended for students interested in positions involving process control and quantitative research in business, industry, and government.

<table>
<thead>
<tr>
<th></th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;English Elective&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics 1400-50-60</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Natural Science Electives&quot;</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>&quot;Social Science Electives&quot;</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounting 2110-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 2120</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Economics 2120-30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Economics Upper-division Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Business and/or Nonbusiness Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>&quot;Computer Science Elective&quot;</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Statistics 3450-60</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>&quot;English Elective&quot;</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>&quot;Social Science Elective&quot;</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Mathematics 2840-50</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Nonbusiness Elective</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Junior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial Management 3010, 3110</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Marketing 3110-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Finance 3110-20-30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Statistics 3310, 3410, 4310</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Business Electives</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Nonbusiness Electives</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Business and/or Nonbusiness Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Senior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Law 4110-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 4430</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Statistics Elective</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Nonbusiness Elective</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Business and/or Nonbusiness Elective</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Computer Science 4310</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

TOTAL: 187 hours

*See page 73.

hours of introductory accounting will receive 6 hours of credit in Accounting 2110-20 and 3 hours of lower-division accounting credit. These students must include one of their technical electives in an upper-division course approved by the accounting department adviser, and it must not be an accounting course.

To graduate with a major in Accounting M.S.O., a minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at the University of Tennessee, Knoxville. These must include a minimum of 15 hours of accounting courses numbered 3000 or above and must include Accounting 4110, 4630, and either 4140 or 4430.

### Freshman

<table>
<thead>
<tr>
<th></th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1510-20</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics 1400-50-60</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Natural Science Electives&quot;</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>&quot;Social Science Electives&quot;</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;English Elective&quot;</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>&quot;Social Science Electives&quot;</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Computer Science Elective</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 2110-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Statistics 2100</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2120-30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Transportation 3110</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Non-business Electives</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Junior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finance 3110, 3120-30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Marketing 3110-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Industrial Management 3010, 3110</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Statistics 3220 or 4310</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Transportation 3115-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Economics Electives</td>
<td>(6 hours from 3110, 3340, 3420, 4110)</td>
<td>3</td>
</tr>
<tr>
<td>&quot;Business Electives&quot;</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Nonbusiness Electives</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Senior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business Law 4110-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 4430</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Transportation 4620, 4920</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Transportation Upper-division Electives</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>&quot;Business Electives&quot;</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Nondepartmental Electives</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

TOTAL: 187 hours

*Includes page 73.

### Management Science Option

The increasing use of electronic computers and modern management methods by industry and the business community has created a rapidly growing demand for personnel capable of using mathematics, statistics, and computer methods for the use of quantitative techniques in solving management problems. In response to this growing demand, the College of Business Administration has established a Management Science Option which is available to qualified students who wish to prepare themselves for careers involving this type of work.

The Management Science Option is designed for students who have demonstrated a high level of ability in mathematics and who are interested in applying this ability toward solving management problems. The Management Science Option is available to students majoring in accounting, general business, industrial management, logistics, marketing, personnel management, statistics, and transportation.

### Accounting M.S.O.

Transfer students with 9 quarter

*See page 73.

*May be accounting electives or other electives specified by accounting department adviser.

### Transportation

A major in transportation is recommended for students who desire to prepare for employment with carriers supplying transportation service, both passenger and freight, or regulatory bodies and planning agencies of federal, state, and local governments. The overall transportation program also prepares students for the examinations of the American Society of Traffic and Transportation. A number of scholarships for transportation majors are available.

To graduate with a major in transportation, a minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at the University of Tennessee, Knoxville. These must include a minimum of 21 hours of transportation courses.

### Hours

<table>
<thead>
<tr>
<th></th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics 1400-50-60</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Natural Science Electives&quot;</td>
<td>4</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>3</td>
</tr>
<tr>
<td>&quot;Social Science Electives&quot;</td>
<td>4</td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
</tr>
<tr>
<td>&quot;English Elective&quot;</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Social Science Electives&quot;</td>
<td>4</td>
</tr>
<tr>
<td>Computer Science Elective</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 2110-20</td>
<td>3</td>
</tr>
<tr>
<td>Statistics 2100</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2120-30</td>
<td>3</td>
</tr>
<tr>
<td>Transportation 3110</td>
<td>3</td>
</tr>
<tr>
<td>Non-business Electives</td>
<td>7</td>
</tr>
<tr>
<td>Junior</td>
<td></td>
</tr>
<tr>
<td>Finance 3110, 3120-30</td>
<td>3</td>
</tr>
<tr>
<td>Marketing 3110-20</td>
<td>3</td>
</tr>
<tr>
<td>Industrial Management 3010, 3110</td>
<td>3</td>
</tr>
<tr>
<td>Statistics 3220 or 4310</td>
<td>3</td>
</tr>
<tr>
<td>Transportation 3115-20</td>
<td>3</td>
</tr>
<tr>
<td>Economics Electives</td>
<td>(6 hours from 3110, 3340, 3420, 4110)</td>
</tr>
<tr>
<td>&quot;Business Electives&quot;</td>
<td>3</td>
</tr>
<tr>
<td>Nonbusiness Electives</td>
<td>3</td>
</tr>
<tr>
<td>Senior</td>
<td></td>
</tr>
<tr>
<td>Business Law 4110-20</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 4430</td>
<td>3</td>
</tr>
<tr>
<td>Transportation 4620, 4920</td>
<td>3</td>
</tr>
<tr>
<td>Transportation Upper-division Electives</td>
<td>6</td>
</tr>
<tr>
<td>&quot;Business Electives&quot;</td>
<td>3</td>
</tr>
<tr>
<td>Nondepartmental Electives</td>
<td>3</td>
</tr>
</tbody>
</table>

TOTAL: 187 hours

*See page 73.

### Hours

<table>
<thead>
<tr>
<th></th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics 1400-50-60</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Natural Science Electives&quot;</td>
<td>4</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>3</td>
</tr>
<tr>
<td>&quot;Social Science Electives&quot;</td>
<td>4</td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
</tr>
<tr>
<td>&quot;English Elective&quot;</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Social Science Electives&quot;</td>
<td>4</td>
</tr>
<tr>
<td>Computer Science Elective</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 2110-20</td>
<td>3</td>
</tr>
<tr>
<td>Statistics 2100</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2120-30</td>
<td>3</td>
</tr>
<tr>
<td>Transportation 3110</td>
<td>3</td>
</tr>
<tr>
<td>Non-business Electives</td>
<td>7</td>
</tr>
<tr>
<td>Junior</td>
<td></td>
</tr>
<tr>
<td>Finance 3110, 3120-30</td>
<td>3</td>
</tr>
<tr>
<td>Marketing 3110-20</td>
<td>3</td>
</tr>
<tr>
<td>Industrial Management 3010, 3110</td>
<td>3</td>
</tr>
<tr>
<td>Statistics 3220 or 4310</td>
<td>3</td>
</tr>
<tr>
<td>Transportation 3115-20</td>
<td>3</td>
</tr>
<tr>
<td>Economics Electives</td>
<td>(6 hours from 3110, 3340, 3420, 4110)</td>
</tr>
<tr>
<td>&quot;Business Electives&quot;</td>
<td>3</td>
</tr>
<tr>
<td>Nonbusiness Electives</td>
<td>3</td>
</tr>
<tr>
<td>Senior</td>
<td></td>
</tr>
<tr>
<td>Business Law 4110-20</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 4430</td>
<td>3</td>
</tr>
<tr>
<td>Transportation 4620, 4920</td>
<td>3</td>
</tr>
<tr>
<td>Transportation Upper-division Electives</td>
<td>6</td>
</tr>
<tr>
<td>&quot;Business Electives&quot;</td>
<td>3</td>
</tr>
<tr>
<td>Nondepartmental Electives</td>
<td>3</td>
</tr>
</tbody>
</table>

TOTAL: 187 hours

*May be accounting electives or other electives specified by accounting department adviser.

### Finance M.S.O.

To graduate with a major in finance, a minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at the University of Tennessee, Knoxville. These must include a minimum of 12 hours of finance courses.
### College of Business Administration

#### Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1510-20</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;English Elective&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics 1840-50-60</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Mathematics Elective&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Science Electives</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Social Science Electives&quot;</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Nonbusiness Elective</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>18</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

#### Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;English Elective&quot;</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Economics 2110-20-30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>&quot;Economics Elective&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounting 2110-20, 2210</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>&quot;Accounting Elective&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics 2840-50-60</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Mathematics Elective&quot;</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Social Science Elective&quot;</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Nonbusiness Elective</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>36</strong></td>
<td><strong>36</strong></td>
</tr>
</tbody>
</table>

#### Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance 3110-20-30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Industrial Management 3110</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Marketing 3110-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Statistics 3450-60, 3550</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Economics 3110-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Accounting Electives</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Computer Science 3150</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>18</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

#### Senior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Law 4110-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Administration 4430</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Industrial Management 4610-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Finance 4650, 4990</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Finance Electives</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Business and/or Nonbusiness</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>36</strong></td>
<td><strong>36</strong></td>
</tr>
</tbody>
</table>

### Industrial Management M.S.O.

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1510-20</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Math 1840-50-60</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Natural Science Elective&quot;</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Social Science Elective&quot;</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>18</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

#### Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;English Elective&quot;</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Accounting 2110-20, 2210</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Math 2840-50-60</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Management Science 2110</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Psychology 2500</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>18</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

#### Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Science 3150</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Statistics 3450-60, 3550</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Accounting Electives</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Marketing 3110-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Industrial Management UD</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>18</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

#### Senior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics 3410</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Business Law 4110-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 4430</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Industrial Engineering 3110</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Industrial Management 4410, 4420</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Industrial Management UD</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>18</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

### Logistics M.S.O.

To graduate with a concentration in Logistics M.S.O., a minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at the University of Tennessee, Knoxville. This must include a minimum of 21 hours of transportation courses.

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1510-20</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics 1840-50-60</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Mathematics Elective&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Natural Science Elective&quot;</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Social Science Elective&quot;</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Nonbusiness Elective</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>18</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

### Marketing M.S.O.

To graduate with a major in Marketing M.S.O., a minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed in residence at the University of Tennessee, Knoxville. These must include the following required marketing courses: 3210, 4210, 4510, 4650, 4710.

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1510-20</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;English Elective&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics 1840-50-60</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Mathematics Elective&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Social Science Elective&quot;</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Social Science Elective&quot;</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Nonbusiness Elective&quot;</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>18</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

### Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting 2110-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2110-20-30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics 2840-50-60</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Mathematics Elective&quot;</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>&quot;Social Science Elective&quot;</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Business and/or Nonbusiness</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>18</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

#### Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting 2210</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Accounting 3110 or 3220 or 3430</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Computer Science 3150</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Economics 3110</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Economics 3120 or 3210 or 3430</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>18</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>
### Personnel Management M.S.O.

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1510-20</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics 1840-50-60</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Natural Science Electives</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Social Science Electives</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Electro</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Accounting 2110-20, 2210</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Math 2840-50-60</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Economics 2120-30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Management Science 2110</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Psychology 2500</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Natural Science Elective</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Science 3150</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Statistics 3450-60, 3550</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 3220</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Industrial Management 3010, 3111</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Finance 3110-20-30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Marketing 3110-20-30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Industrial Management UD Electives</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics 3410</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Business Law 4110-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 4430</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Industrial Engineering 4210</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Industrial Management 4520-30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Industrial Management 4610-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Nonbusiness Electives</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Economics Electives</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

### Statistics M.S.O.

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1510-20</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Economics 1840-50-60</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Natural Science Electives</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Social Science Elective</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting 2110-20-30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Marketing 3110-20</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Business Administration 4430</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Industrial Management 3010, 3111</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Computer Science 3150</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Accounting 2110-20, 2210</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2120-30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Business Elective</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

### Transportation M.S.O.

To graduate with a major in Transportation M.S.O., a minimum of 30 quarter hours of required upper-division College of Business Administration courses must be completed at the University of Tennessee, Knoxville. These must include a minimum of 21 hours of transportation courses.

### Graduate Studies

The College of Business Administration offers advanced programs in economics leading to the Master of Arts, the Master of Science, the Master of Arts in College Teaching, and the Doctor of Philosophy degrees. The Master of Business Administration degree program is offered in the fields of accounting, economics, finance, governmental financial administration, industrial management, management science, marketing, real estate and urban development, statistics, and transportation and logistics. The Doctor of Business Administration degree program is offered in the fields of accounting, finance, management, marketing, and transportation and logistics. Advanced programs in management science lead to the M.S. and the Ph.D. degrees. The M.S. degree in statistics is also available. The M.S. and the Ph.D. degrees are granted in industrial and organizational psychology jointly with the Department of Psychology. See the Graduate School Catalog for detailed information.

Students applying to the MBA and DBA programs are required to take the Graduate Management Admission Test (GMAT). Applicants for the M.A., M.A.C.T., M.S., and Ph.D. programs may take either the GMAT or the Graduate Record Examination (GRE). Applicants whose native language is...
other than English must submit results of the Test of English as a Foreign Language (TOEFL). Scheduled dates and locations for taking these examinations may be obtained from Educational Testing Service, P.O. Box 966, Princeton, New Jersey 08540, and from most colleges and universities.

An applicant must file an application with the Graduate School of the University and request that transcripts of all college-level work and results of the appropriate admission test be sent to the Graduate School. A decision on admission cannot be made until these documents are available. Most doctoral programs require letters of recommendation from three individuals. Applications, transcripts, and admission test scores should be submitted three months prior to desired entry date.

Departments of Instruction

Numbers in parentheses following the course titles indicate quarter hours credit offered.

Accounting and Business Law

Professors:

Associate Professors:
B.D. Fisher, LL.M. George Washington; P.J. Hambrick, Ph.D. Iowa; G.E. Nichols, Ph.D., Louisiana State, CPA; I.A. Posey, M.S. Tennessee, CPA; W.L. Slagle, M.S. Tennessee, CPA; R.L. Townsend, Ph.D. Texas, CPA; F.E. Watkins, Jr., Ph.D. Louisiana State, CPA.

Assistant Professors:
H.C. Herrig, III, Ph.D. Alabama, CPA; F.A. Jacobs, Ph.D. Georgia, CPA; M.C. Letsinger, M.S. Tennessee, CPA; L.E. Rittenburg, Ph.D. Minnesota; N.E. Shurtz, J.D. Ohio State.

Visiting

Accounting (009)

2110-20 Fundamentals of Accounting (3, 3) Introductory courses in financial accounting theory and practice with emphasis on preparation, reporting, and analysis of financial information. Prereq to all other courses in accounting except for engineering majors. Courses must be passed in sequence.

2210 Introductory Managerial Cost Accounting (3) Cost behavior concepts and the development of accounting information for decision making. Subjects include cost-volume-profit analysis, budgeting concepts, and manufacturing cost systems. Prereq: 2120.

3110 Intermediate Accounting (3) Accounting principles and conventions, use of various forms of working papers, preparations of statements, analysis of balance sheet items including cash, receivables, and inventories. Prereq: 2120.

3120 Intermediate Accounting (3) Continuation of 3110. Valuation and depreciation problems relating to tangible and intangible fixed assets, accounting for investments, amortization of premiums and discounts, bonds payable, other liabilities, funds and reserves. Prereq: 3110 with grade of C or better.

3130 Intermediate Accounting (3) Continuation of 3120. Capital stock and retained earnings, transactions, single entry accounting, comparative financial statement analysis, financial ratios, the funds statement, income tax allocation. Prereq: 3120 with grade of C or better.

3220 Managerial Cost Accounting (3) Continuation of 2210. Cost analysis for decision making and control. Subjects include accounting information for capital budgeting, inventory management, and advanced problem areas: Prereq: 2210 and Computer Science 1410 or equivalent.


3510 Governmental Budgeting and Accounting (3) Theory and practice of budgeting, financial and managerial accounting and reporting, planning, programming, budgeting, and auditing for governmental and non-profit organizations. Prereq: 2210 or equivalent.

3630 Electronic Data Processing Concepts and Control (3) Elements and operation of computers in a business environment; accounting systems are emphasized. Topics include input, storage, data manipulation, output, and error control. Prereq: 2210, Computer Science 3410 or equivalent.

4110 Principles of Auditing (3) Nature of audit evidence, basic audit techniques and procedures, and internal and external functions. Prereq: 3300 with grade of C or better; Computer Science 3810. Prereq or coreq: Statistics 3410.

4120 Advanced Auditing (3) Legal and professional responsibilities of the auditor, evaluation of internal control, utilization of EDP and statistical techniques in auditing, and audit reports. Prereq: 4110 with grade of C or better.

4140 Reporting for Interrelated Business Entities (3) Principles and techniques of consolidated financial statements; foreign branches or subsidiaries. Prereq: 3130 with grade of C or better.

4430 Advanced Federal Taxes (3) Problems of federal taxation with an emphasis on tax planning and research. Prereq: 3210, 3230, 3430.

4630 Analysis and Design of Information Systems (3) General systems concepts, flowcharting, planning of systems studies, determination of systems objectives, development and evaluation of design alternatives, implementation, documentation, and control. Prereq: Computer Science 3810.

4950 Individual Research in Accounting (3) Special projects undertaken by undergraduate majors in accounting under direction of faculty members of professorial rank. Prereq: 3130 with grade of C or better.

4990 Senior Seminar (3) Advanced problems in the financial accounting area are analyzed and discussed by students. Prereq: 3130 with grade of C or better.

GRADUATE

See page 80 for information on graduate programs.

5000 Thesis.

5002 Non-Thesis Graduation Completion (3)

5050-60 Introduction to Financial Accounting (3, 3)

5110 Seminar in Accounting Theory (3)

5120 Seminar in Advanced Auditing (3)

5130 Seminar in Current Accounting Topics (3)

5210 Seminar in Advanced Cost Accounting (3)

5310 Auditing Concepts (3)

5330 Advanced Income Tax (3)

5340 Consolidations and Business Combinations (3)

5420 Seminar in Advanced Taxation (3)

5510 Governmental Accounting (3)

5630 Accounting Systems and EDP Concepts and Control (3)

5640 Seminar in Management Information Systems (3)

5810 Accounting for Control (3)

5820 Corporate Reporting Problems (3)

6000 Doctoral Dissertation and Research

6110-20-30 Doctoral Seminar in Accounting (3, 3, 3)

Business Law (216)


4120 Law of Business Organizations and Regulation (3) General principles of law, as these pertain to business partnerships and corporations, affect taxation, and treat with agencies regulating business. Prereq: 4110.

4130 Administrative Regulation of Business (3) Analyzes nature and extent business operations are controlled by administrative agencies operating at federal, state, and local levels. Includes nature of administrative agencies, jurisdiction, administrative procedures, and significant laws administered by such agencies. Prereq: 4120.

4330 Business Law (3) Fundamentals of business law designed for professional examination required for licensing, or certificants in fields of public accounting, certified public accounting, chartered property and casualty underwriters, chartered life underwriters and certified professional secretary.

GRADUATE

5050 Legal Environment of Business (3)

Economics (283)

Professors:

Associate Professors:

Assistant Professors:
N.O. Alper, M.A. Pittsburgh; H.-S. Chang, Ph.D. Vanderbilt; S.M. Crafton, Ph.D. Texas A & M; R.J. Gaston, Ph.D. California (Los Angeles); R.D. Gustley, Ph.D. Syracuse; H.W. Herzog, Jr., Ph.D. Maryland; R. Kyle, Ph.D. Tennessee; A.M. Schiottmann, Ph.D. Washington (Missouri).

Visiting

Requirements for a major in economics consist of: (1) Economics 2110, 2120, and 2130; and (2) a minimum of 33 additional hours in upper-division economics courses. Economics 3110 (3) and 3120 (3) and 3120 are required as a part of the upper-division work and should be taken as early in the upper-division program as possible.
2001 Current Economic Problems (3) Discussion of selected economic policies and events. Several topical areas will be considered. A grade of C or better will be assigned if the student shows an understanding of the economic policies. In an introductory course to business administration majors. May not be used for degree requirements in business administration, and may not be substituted for Economics 2110 or 2120 or 2120.

2110-20-30 Introductory Economics, (3,3,3) 2110—Macro and micro theory. 2120—Macro problems and policies and the international economy. 2130—Micro problems and policies. Prereq: 2110 for both 2120 and 2130. Third quarter standing required for admission to 2110.

2118-28-38 Honors: Introductory Economics (3,3,3) Honors course designed for students of superior ability and interest. Entrance into 2118 requires a B average; selected third quarter freshmen will be accepted on basis of high school record. American College Testing Program scores, and grade record during first two quarters. Grade of B in 2118 is necessary for entrance into 2128. An A or B in 2128 automatically gives credit for 2138 also, with same grade. Students making C or D in 2128 must take 2130 in order to receive nine hours credit.


3120 Intermediate Macro Theory (3) Aggregate demand, output, and level of employment: price level, inflation and deflation; economic growth. Prereq: 2110, 2120.

3210 International Economics I (3) Balance of payments, exchange rates, and the adjustment process. College of Business Administration.


3230 Regional Economics (3) Theory and policy of regional economic development. Prereq: 3220.


3250 Economic History of Europe (3) Beginnings of capitalism in medieval Europe, expansion of Europe and dominance of mercantilism in early modern times, mechanization of industry, changes in agrarian organization, and growing importance of commerce in the nineteenth century; two world wars and their economic consequences. Prereq: 2110-20.

3310 Comparative Economic Systems (3) Description and analysis of economic goals, institutions and policies in different countries with emphasis on alternative organizational principles and structures. Systems examined will include Soviet-type economies. Prereq: 2110-20-30.

3340 Government and Business (3) Microeconomic objectives and alternative public policies for their achievement. College of Business Administration. 2130.

3410 Principles of Labor Economics (3) Supply of and demand for labor; market wage determination; economic models of labor supply and labor force participation analysis to various labor market problems such as; unemployment, inflation, minimum wage laws, income taxation and occupational licensing. Prereq: 2110-20.


4000 Special Topics (3) Student-generated course offered at convenience of department upon student initiative. Subject matter and contents determined by students and instructor with approval of department. Prereq: determined by department each time course is offered. Numerical grade is given to law students. May be repeated for credit.

4110 Managerial Economics (3) Application of economic theory to business decision making: emphasis on objective functions and profit maximization. 2110. Prereq: 2110.

4130 Business Cycles (3) Fluctuations in income, employment, prices, and output in the economic system; subjects discussed are historical facts concerning business cycles; methods of analyzing business cycles, cyclical fluctuations; and policies that have been proposed to combat them. Prereq: 3120 or consent of instructor.

4150 History of Economics Through (3) Development of economic thought, tools of analysis, and economic as a social science, together with an analysis of socio-economic conditions which influenced economic thought. Period covered: 1776 through 1936. Prereq: 2110, 2120, 2130 and consent of instructor.

4170-80 Introduction to Mathematical Economics (3,3) Application of mathematical methods in theoretical study of micro and macroeconomic phenomena. Designed for undergraduate students who have limited training in analytic geometry and calculus. Must be taken in sequence. Prereq: Economics 3110 and Mathematics 1810-20, or equivalent.

4230 Problems in International Trade and Economic Development (3) Problems of trade areas of current international economic problems and economic development. Prereq: 3210 or 3220.

4231 The Political Economy of Latin America (3) Description, analysis, and comparison of major economic problems of Latin American countries.

4232 The Political Economy of Asian Development (3) Description, analysis, and comparison of major economic problems of India, China, and Southeast Asian countries.

4260 Economics of Resources (3) Descriptions, needs, and allocation of resources. Benefits and costs of development and use of resources in industrial society.


4430 Labor Legislation (3) Economic background and effects of governmental regulation of labor relations, with emphasis on detailed examination of National Labor Relations Act as amended. Prereq: 2110.


4990 Independent Study (1-4) Offers qualified student opportunity to pursue topics or projects of special interest. Prereq: Senior standing, 3.0 GPA in economics courses and permission of instructor. May be repeated. Maximum total 4 hours credit.

GRADUATE
See page 80 for information on graduate programs.

Economic Theory

5050 Introduction to Economic Analysis (3)

5060 Introduction to Economic Problems and Policies (3)

5070-80 The Firm and Its Environment (3,3)

5111-12 Microeconomic Theory (3,3)

5121-22 Macroeconomic Theory (3,3)

5150 History of Economic Thought (3)

5180-90 Mathematical Methods in Economics (3,3)

5510 Quantitative Methods in Economic Research (3)

5520 Introduction to Econometrics (3)

5810 Financial Markets and Intermediaries (3)

5820 Monetary Theory and Policy (3)

5830 Commercial Bank Management (3)

6111 Seminar in Advanced Microeconomic Theory (3)

6121 Seminar in Advanced Macroeconomic Theory (3)

6150-60 History of Economic Doctrines (3,3)

6170-80-90 Econometric Methods (3,3,3)

International Trade and Development

5210 Seminar in International Trade Theory (3)

5220 Seminar in Economic Development (3)

5250 Economic History of Europe (3)

5260 Economic History of the U.S. (3)

5610 Location and Regional Development Theory (3)

5620 Methods of Regional Analysis (3)

6211-12, 6221-22 Seminar in International Economics (3,3,3,3)

6331-32, 6421-42 Seminar in Economic Development (3,3,3,3)

6250 Seminar in European Economic History (3)

6260 Seminar in American Economic History (3)

6270 Seminar in Economic History of the Third World (3)

6610 Seminar in Regional Analysis (3)
5340 Seminar in Private Enterprise and Public Policy (3)
6351-52 Seminar in Industrial Organization (3, 3)
6361-62 Seminar in Industrial Organization (3, 3)
Economics of Centrally Planned Economies (3)
5310 Economic Systems (3)
6331 Theory and Practice of Economic Planning (3)
Economics of Labor and Manpower (3)
5410 Seminar in Labor Manpower Economics (3)
5420 Seminar in Wage and Employment Theory (3)
6411-12, 6421-22 Seminar in Labor Economics (3, 3, 3, 3)
Other Economics Courses
5000 Thesis (3)
5002 Non-Thesis Graduation Completion (3)
5011-12 Problems in Lieu of Thesis (3, 3)
5910-20-30 Economics Seminar (1, 1, 1)
6000 Doctoral Dissertation and Research (3)

Finance
Professors:
R.M. Duval (Head), Ph.D. North Carolina;
L.P. Anderson, Ph.D. Wisconsin; W.W. Dotterweich, Ph.D. Pennsylvania;
H.L. Johnson, Ph.D. Virginia; E.W. Lambert, Jr., Ph.D. Alabama; C.P. White (Emeritus), Ph.D. Pennsylvania.
Associate Professors:
Assistant Professors:
A.L. Auxier, Ph.D. Iowa; H.S. Banton, Ill., M.S. Auburn; M. Lindahl-Stevens, M.S. Illinois; R.A. Weir, Ph.D. North Carolina.

Prerequisites: Accounting 2110-20-30, Economics 2110-20-30, and Statistics 2100 for all courses offered in the finance department except Insurance 3020.

Finance (349)
3110 Money and Banking (3) Nature and functions of money and credit; analysis of monetary and credit systems; money creating role of commercial banks and the Federal Reserve Systems.
3120-30 Business Finance (3, 3) Principles of financial management. Analysis of demand for funds, internal and external supplies of funds, and their costs to the firm. 3120 is prerequisite for 3130.
4110-20 Investment Analysis (3, 3) Theory of investment value, fundamental security analysis, and valuation of specific types of securities. Prereq: 3120-30; 4110 for 4120.
4130 Investment Portfolio Management (3) Analysis of investment objectives; portfolio management policies applicable to individual and institutional investors. Prereq: 4120; Statistics 3220, 4310 or consent of instructor.
4150-60 Evolution and Function of Financial Institutions (3, 3) Financial system of the United States; emphasis on historical role and functions of financial institutions.
4350-60 Public Finance (3, 3) Public expenditures, federal and state revenue systems, financial administration, budgeting and public debt management.
4370 State and Local Finance (3) Emphasis on revenue systems and division of tax sources.
4510 Monetary Theory and Policy (3) Role of money in the economy. Emphasis upon factors that affect demand for and supply of money. Evaluation of current policy.
4520 Commercial Banking (3) Operations of commercial banks, emphasis on asset and liability management. Prereq: 3110.
4660 Problems in Financial Management (3) Financial decision making, a case approach. Prereq: 3120-30; Statistics 3220.
4800 Business Executive in Residence (3) Develops practical areas of finance curriculum. Leading financial executives, bankers, insurance executives, and realtors will conduct classes. May be repeated to maximum of 6 hrs credit. Prereq: Consent of department.
4990 Senior Seminar (3) Intensive investigation of specific topic in student's area of concentration. Taken last quarter of senior year. Required of all students majoring in finance, insurance, or real estate.

GRADUATE
See page 80 for information on graduate programs.
5000 Thesis (3)
5002 Non-Thesis Graduation Completion (3)
5050 Survey of Finance Functions in Business (3)
5110 Theory of Financial Management (3)
5120 Quantitative Techniques in Financial Management (3)
5130 Financial Administration (3)
5140 Seminar: Managerial Finance (3)
5210-20 Public Finance (3, 3)
5230 Government Financial Administration (3)
5420-30 Investments (3, 3)
5620 Taxation and Business Decisions (3)
5800 Executive-in-Residence Seminar for M.B.A. (3)
5810 Financial Markets and Intermediaries (3)
5820 Monetary Theory and Policy (3)
5830 Commercial Bank Management (3)
5990 Research in Finance (3)
6000 Doctoral Dissertation and Research (3)
6110-20 Seminar in Monetary Theory (3, 3)
6210-20 Seminar in Fiscal Theory and Public Finance (3, 3)
6410 Analysis for Financial Decisions (3)
6420 Theory of Finance (3)
6510 Seminar in Financial Management (3)
6810 Financial Institutions and Markets (3)

Insurance (580)
3020 Introduction to Risk and Insurance (3) Consumer-oriented view of risks faced by individuals and business. Methods of risk management, with particular emphasis on life, property, and casualty insurance.
3220 Business Risk Management (3) Principles of risk-bearing and risk analysis, economics of risk and insurance.
4710 Life Insurance and Estate Planning (3) Coordination of life and health insurance with protection, conservation, and distribution of estate assets.
4720 Employee Benefit Plans (3) Plan design, cost factors, and funding media for employee benefits, including business life insurance, group insurance, pensions, profit sharing and other forms of deferred compensation.
4740-50 Property-Casualty Insurance Planning (3, 3) Property and casualty contracts and forms and their application to business and personal risks. Must be taken in sequence.

GRADUATE
5110 Theory of Risk Management (3)
5210 Seminar in Insurance (3)

Real Estate and Urban Development (649)
2610 Introduction to Real Estate (3) Basic concepts, tools and analysis of real estate. May not be used for degree requirements in business administration.
3610 Principles of Real Estate and Urban Development (3) Introduction to real estate and urban development. Prereq: Economics 3110.
3630 Real Estate Finance (3) Institutional and governmental procedures and techniques for financing real estate transactions. Prereq: 3610.
3640 Management and Development of Real Property (3) Real estate investment analysis and taxation. Prereq: 3630.
4110 Real Estate Appraisals (3) Theory and practices of determining real estate value. Prereq: 3610.
4120 Urban Growth and Land Use (3) Analysis of urban growth processes and land use patterns. Prereq: 3610.
4130 Problems of Urban Development (3) Current problems of land use and urban developments. Prereq: 3610.
4900 Aspects of Urban Environment (4) Same as Architecture 4900, Human Services 4900, and Psychology 4900.

GRADUATE
5002 Non-Thesis Graduation Completion (3)
5110 Urban Economic Analysis (3)
5120 Real Estate Analysis (3)
5130 Housing and Urban Land Markets (3)
5140 Real Estate Investment and Taxation Analysis (3)

Industrial And Personnel Management
Professors:
J.M. Lassen, Jr., Ph.D. Purdue; S.K. Reed, Ph.D. Edinburgh (Scotland); S.C. Vance, Ph.D. Pennsylvania. (Wm. B. Stokely Professor of Management); G.H. Whitlock, Ph.D. Tennessee.
Associate Professors: R.D. Avev, Ph.D. Minnesota; F.A. Chamblin, M.B.A. Indiana; H.D. Dewhirst, Ph.D. Texas; O.S. Fowler, Ph.D. Georgia; M.E. Gordon, Ph.D. California (Berkeley); R.C. Maddox, Ph.D. Texas; C.W. Neel (Acting Dean) Ph.D. Alabama.

Assistant Professors: J.A. Bachmann, Ph.D. Virginia Polytechnical Institute; R.L. Bigboy, Ph.D. Purdue; D.A. Hake, Ph.D. Tennessee; W.B. Henderson, Ph.D. Purdue; W.W. Williams, B.S. Pennsylvania State.

*Alumni Distinguished Service Professor.

Visiting.

Industrial Management (566)

Nine quarter hours of general economics including Economics 2110-20 or the equivalent are prerequisite to all courses in personnel and industrial management.

301 Principles of Management (3) Analysis of basic management functions of planning, organizing, and controlling.

3110 Production Management (3) Analysis of production functions. Prereq: Statistics 2100 or 3450. Not available for industrial management majors.

3111 Operations Management (3) Analysis and synthesis of concepts and techniques for decision making in the operations function. Integration of the operations function with other business functions.

3170-40-40 Research Seminar in Organizational Psychology (3, 3, 3)


3220 Human Resources (3) Organization of production function. Prereq: 3110-20 or approval of instructor.

3320 Operations Supervision (3) Production supervision with emphasis on "human" problems. Prereq: 3110-20.

410 Operations Control (3) Analysis of the operations control function. Techniques of short-term forecasting; material and capacity requirements planning; integration of scheduling and operations flows into the total operations function. Prereq: 3111.

4200 Advanced Industrial Management (3) Cases in production management. Prereq: Fifteen quarter hours in major including 4410.

4460 Organizational-Industrial Psychology (3) An analytical and empirical approach to application of psychological tools and knowledge to organizations. Prereq: 3 hrs. of statistics. (Same as Psychology 4460.)

4470 Job Analysis and Evaluation (3) Job evaluation as basis for control of wages and salaries. Prereq: 4460.

4520 Evaluation of Personnel Programs (3) Methodologies for criterion development analyzed in areas of selection, testing, job evaluation, safety, and labor relations; performance evaluation emphasized. Prereq: 4460-70; Statistics 4310.

4530 Personnel Problems Seminar (3) Case problems in personnel analyzed, applying experimental method and conclusions from personnel research as reported in professional journals. Prereq: 4520.

4610-20 Management Science (3, 3) Applications of mathematical and statistical techniques to problems of production and management. Must be taken in sequence. Prereq: Thirty quarter hours of mathematics and statistics, and permission of instructor.

4801-02-03 Readings and Research in Personnel Management (1, 2, 3) Prereq: 4460, Statistics 4310, and permission of instructor.

GRADUATE

See page 80 for information on graduate programs.

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5050 Production Management (3)

5110 Organization Theory I (3)

5120 Organization Theory II (3)

5130 Managerial Planning and Control (3)

5170-80-90 Proseminar in Organizational Psychology (3, 3, 3)

5210 Personnel Management (3)

5220 Wage and Salary Administration (3)

5230 Human Problems in Administration (3)

5240 Personnel Research Seminar (3)

5250-60-70 Organizational-Industrial Psychology (1-3, 1-3, 1-3)

5320 Management Problems in Industrial Research (3)

5410-20-30 Production Management (3, 3, 3)

5610-20 Organizational Behavior (3, 3)

5640 Seminar in Management Information Systems (3)

5710 Management of Foreign Operations (3)

6000 Doctoral Dissertation and Research

6110 History of Management Thought (3)

6120 Advanced Organizational Theory (3)

6130 Seminar in Contemporary Management Issues (3)

6250-60-70 Seminar in Organizational Psychology (3, 3, 3)

6380 Seminar in Industrial Psychology (3)

6900 Field Work in Industrial Psychology

Management Science Programs

Associate Professors: C.E. Bell (Chairman), Ph.D. Yale; R.S. Garfinkel, Ph.D. Hopkins.

Assistant Professor: R.E. Rosenthal, Ph.D. Georgia Tech.

Management Science (627)

2110-20 Decision Models (3, 3) Introduction to the use of quantitative techniques in the decision-making process. Prereq: Mathematics 1560, Statistics 2100, and Computer Science 1410 or Office Administration 2750.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5100 Introduction to Management Science Techniques (3)

5310-20-30 Management Science Methods (3, 3, 3)

5340 Application of Management Science Methods (3)

5510 Topics in Optimization (3)

5610 Markovian Decision Models (3)

5620 Queuing Models (3)

5810 Special Topics in Management Science (3)

5910 Management Science Problems (1-6)

6000 Doctoral Research and Dissertation

6110-20-30 Models for Production Systems (3, 3, 3)

6810 Special Topics (3)

6910-20-30 Management Science Seminar (1-3, 1-3, 1-3)

Marketing and Transportation


Marketing (632)

Nine quarter hours in general economics, including Economics 2110-20 or the equivalent are prerequisite to all courses in marketing.


3120 Marketing Management (3) Analysis of marketing management. Identifying market opportunities, planning marketing program, and implementing competitive strategies. Prereq: 3110.

3210 Marketing Systems (3) Marketing systems approach from viewpoint of product maker. Examination of inputs, outputs, organizations, and goals of marketing systems. Consideration of comparative marketing systems. Prereq: 3110.

4140 Marketing Communications-I (3) Examination of firm's personal communications function. Managing sales, advertising, including personal selling concepts. Particular emphasis on roles of sales organization in marketing program. Prereq: 3110-20.


4310 Retailing Management (3) Structure and environment of retailing and its relationship to other parts of the economy. Research and decision mak-
3110 Introduction to Transportation (3) Economic, social, and political aspects of national transportation system; economic characteristics of modes of transport; regulatory problems.
3115 Business Logistics (3) Introduction to management of physical distribution and supply systems, consideration of design concepts, cost determinants, firm and environment constraints. Prereq: 3110. Statistics 2120 or equivalent.
3120 Traffic Management (3) Concepts and problems of freight traffic management; route making; theories and classification systems. Prereq: or Coreq: 3110.
3310 Transportation Rates (3) Analysis of current railroad and motor carrier tariffs, classification systems, rate systems. Prereq: 3120.
4110 Railroad Transportation (3) Analysis of economic characteristics, regulatory provisions, and organizational patterns of the railroad industry.
4210 Highway Transportation (3) Analysis of economic characteristics, regulatory provisions, and organizational patterns of motor carrier industry.
4310 Water Transportation (3) Analysis of economic characteristics, regulatory provisions, and organizational patterns of water transportation system.
4420 Air Transportation (3) Analysis of economic characteristics, regulatory provisions, and organizational patterns of commercial aviation.
4510 Urban Transportation (3) Analysis of economic characteristics, regulatory provisions, and management of transportation firms operating in urban areas.
4610 Carrier Pricing Strategy (3) Historical development of carrier pricing systems and analysis of current strategy.
4620 Carrier Management (3) Application of management decision making in transportation. Prereq: Senior standing with minimum of 18 hours in transportation.
4720 Business Logistics: System Management and Control (3) Consideration of control techniques and management decision problems in logistics operations.
4810 International Transportation and Logistics (3) Introduction to import-export traffic management, international carrier management problems, and discussion of transportation systems in other countries.
4820 Current Topics in Transportation and Business Logistics (3) Seminar designed to study specific current problem areas in transportation and distribution. Topic announced prior to offering. May be repeated once for credit. Prereq: Consent of instructor.
4830 Supervised Readings in Transportation and Business Logistics (3) Directed readings and research on subject of mutual interest to student and staff member. Prereq: Senior standing with minimum of 18 hrs of transportation research.
4910 Carrier Liability and Claims (3) Rights and liabilities of carriers, consignors, and consignees; claim procedures and litigation prevention.
4920 Transportation Law and Procedures (3) Analysis of Interstate Commerce Act and related statutes, practices and procedures before regulatory agencies.
4930 Transportation Policy (3) Analysis of regulatory, promotional, and planning policies of federal, state, and local governmental units.
4320 Business Report Writing (3) Principles and mechanics of report writing, tabular and graphic presentation, basic instruction in formal research reports and thesis writing, and sources of business information.

4410-20 Advanced Shorthand and Transcription (3, 3) Improvement of ability to take dictation and transcribe mailable copy; emphasis on skill necessary to meet occupational standards. Prereq: 2330, 2 three-hour periods.

4430 Supervised Office Experience (3) Orientation to office positions by actual office work; telephoning techniques; sources of information required by secretary, record keeping, and office etiquette. Prereq: 3210, 4310. 2 three-hour periods.

4510 Office Management (3) Function of office; office building; physiological factors; office environment; furniture and equipment; machines and supplies; selection of employees; compensation and incentive plans; job analysis, and supervision.

4520 Office Systems (3) Routines and procedures for correspondence and mailing; filing systems; oral communications; office planning and layout; systems of control.

4540 Problems in Office Management (3) Work simplification; cost control and reduction; development of standards; use and preparation of office manuals. Prereq: 3210, 4320 or approval of instructor.

4551-61 Problems in Office Management: Systems Analysis (3, 3) Prereq: 3210, 4320, 4520 or equivalent.

4552-62 Problems in Office Management: Form Design (3, 3) Prereq: 3210, 4320, 4520 or equivalent.

4553-63 Problems in Office Management: Records (3, 3) Prereq: 3210, 4320, 4520 or equivalent.

4554-64 Problems in Office Management: Mechanization (3, 3) Prereq: 3210, 4320, 4520 or equivalent.

4555-65 Problems in Office Management: Correspondence (3, 3) Prereq: 3210, 4320, 4520 or equivalent.

4556-66 Problems in Office Management: Supervision (3, 3) Prereq: 3210, 4320, 4520 or equivalent.

4557-67 Problems in Office Management: Work Simplification (3, 3) Prereq: 3210, 4320, 4520 or equivalent.

4558-68 Problems in Office Management: Training (3, 3) Prereq: 3210, 4320, 4520 or equivalent.

4559-69 Problems in Office Management: Work Measurement (3, 3) Prereq: 3210, 4320, 4520 or equivalent.

4710 Punched Card Methods (3) Card designing, key punching, sorting, tabulating, and preparation of reports; application to problems in fields of accounting, statistics, personnel, economics, psychology, education, and other areas of research. 3 hrs and 2 two-hour labs.

4720 Punched Card Application (3) Problems on tabulator and collator, introduction to programming, system design, and preparation of procedure manuals and flow charts. Prereq: 4710 or equivalent.

GRADUATE

5011 Problems in Lieu of Thesis (3)

5050 Data Processing in Business (3)

Statistics (962)

Professors: C.C. Thigpen (Head), Ph.D. Virginia Polytechnic; D.S. Chambers, M.B.A. Texas; R.A. McLean, Ph.D. Purdue.

Associate Professors: H.A. Lasater, Ph.D. Rutgers; J.W. Philpot, Ph.D. Virginia Polytechnic; R.D. Sanders, Ph.D.

Texas; D.J. Wheeler, Ph.D. Southern Methodist.

Assistant Professors: W.H. Olson, Ph.D. Virginia Polytechnic; G.B. Ranney, M.E.S. North Carolina State (Raleigh); W.S. Younger, Ph.D. Virginia Polytechnic.

1 Visiting.

2100 Probability and Statistics (3) Elementary theory of probability; frequency and density functions; expected values and variances; fundamental concepts of statistical inference. Cannot be taken for credit by students who have credit for 3450. Prereq: Mathematics 1560 or 1850.

3220 Analysis of Time Series (3) Some statistical methods applicable to analysis of trends and time series; graphic presentation and analysis, index numbers, curve fitting, correlation, trend, analysis, seasonal and cyclical variation. Prereq: 2100 or 3450.

3310 Industrial Statistics (3) Shewhart Control Charts, acceptance sampling by attributes, Military Standard sampling plans. Special applications of control charts, acceptance sampling theory and procedures. Prereq: 2100 or 3450.

3410 Sampling Methods (3) Expository treatment of the basic ideas of scientific sampling illustratively developed. Emphasis on sampling methods for accounting and marketing research. Prereq: Statistics 2100 or 3450.

3450 Statistics for Engineering (3) Survey of statistical methods with special application for engineering students; frequency distributions, selected sampling distributions, some tests of significance may be taken for credit concurrently with 2100. Prereq: Mathematics 2840.

3460 Statistics for Engineering (3) Continuation of 3450 with emphasis on chi-square statistic, analysis of variance, and multiple regression analysis. Prereq: 2840 or 2850.

3550 Random Processes and Probability Models (3) Functions of random variables, multivariate distributions, conditional expectations, waiting time distributions; Poisson processes, life-testing, queuing, Markov processes. Introductory theory with applications. Prereq: 3460; Mathematics 2850.

4250 Non-Parametric Methods (3) Measures of association, two-sample tests, analysis of variance with ranked data, paired and multiple comparisons in preference testing; questionnaire evaluation. Prereq: 2100 or 3450.

4310 Regression and Correlation (3) Linear regression and correlation, polynomial and multiple regression, multiple and partial correlation. Prereq: 2100 or 3450.

4410 Design of Experiments (3) Principles and procedures for experimental design. Randomization, choice of size and number of experimental units, utilization of blocking arrangements. Interpretation of experimental data. Prereq: 2100 or 3450.

4750 Statistical Problems in Business (3) Case study, course of statistical problems in variety of business areas. Prereq: Fifteen hours in statistics and permission of instructor.

GRADUATE

Prerequisites for a major: Mathematics 2840-50-60, Statistics 3450 or equivalent.

5002 Non-Thesis Graduation Completion (3) Prereq: 5050-60-70 Statistical Analysis for the Behavior Sciences (3, 3, 3)

5110 Introduction to Probability Theory (3)

5120-30 Theory of Statistical Inference (3)

5140 Theory of Least Squares (3)

5210 Stochastic Processes I (3)

5211 Elementary Statistics (3)

5311 Fundamental Concepts of Probability Theory (3)

5312 Statistical Methods (3)

5420 Intermediate Analysis of Variance (3)

5610 Special Topics in Statistics (3)

5600 Applied Multivariate Analysis (3)

5670 Factor Analysis (3)

6210 Stochastic Processes II (3)

Interdepartmental Unit

Business Administration (205)

1110 Business Administration (3) Introduction to business. Not open to students with more than 3 credit hours of economics.

4430 Business Policy (3) Analysis of business problems and managerial decision making through case study method and written reports. Prereq: Core requirements except business law (see page 73) and senior standing.

4610 Seminar in Small Business Assistance (3) Application of classroom learning to problems of small business in the community. Student is given opportunity to apply business concepts and develop analytical skills. Upon completion of selected readings relevant to small or minority enterprise, students are assigned a project on basis of interest, ability, and experience. Students work in teams under supervision of a participating professor within the College of Business Administration. Approval for enrollment must be secured from instructor in advance. May be repeated to maximum of 9 hrs. credit.

4990 Institutional and Organizational Research (3) Design, implementation, and evaluation of cross-disciplinary research on organizational and institutional change. Enrollment requires membership on the Standing Committee on Improvement of Learning and Teaching in the College of Business Administration. Prereq: Recommendation of student's department head and approval of selection board of Standing Committee.

GRADUATE

See page 80 for information on graduate programs.

5310 Business Policy (3)

5410 Business and Its Societal Environment (3)

5610 Seminar in Applied Business Analysis (3)

5900 Academic Practicum (3)

6900 Research Methodology (3)

Center for Business and Economic Research

STAFF

D.A. Hake (Director), Assistant Professor of Management Science, Ph.D. Tennessee

W.F. Skidmore, Assistant Director, M.S. George Washington

K.E. Quinidy, Research Professor, Ph.D. Kentucky

C.B. Garrison, Associate Professor of Economics, Ph.D. Kentucky

G.W. Kronbach, Research Associate, M.A. North Dakota

N.O. Alper, Research Assistant Professor, M.A. Pittsburgh

R.D. Gustely, Research Assistant Professor, Ph.D. Syracuse
College of Communications

Donald G. Hileman, Dean
Jerry R. Lynn, Associate Dean for Graduate Studies
James A. Crook, Assistant Dean for Undergraduate Studies

Communication has become increasingly significant in today's complex society. The growth of specialization, the widening gaps among segments of society, and the inescapable nature of world conflict point up the need for a greater understanding of communication processes and for the education of young men and women capable of perceptive understanding of the communications media.

The College of Communications offers programs designed to acquaint students with the nature of communication and to prepare them for professional work in a variety of communications fields. The College is composed of the School of Journalism and the Departments of Advertising and Broadcasting. The curricula of these three academic divisions have a common base of courses beyond which choices will permit the student to develop special interests.

The American Council on Education for Journalism has accredited the News-Editorial and the Advertising programs. The College is a member of the American Association of Schools and Departments of Journalism and the Association for Professional Broadcasting Education.

Admission Requirements

Admission requirements are stated on page 18. Communications majors must demonstrate ability to use a typewriter proficiently before beginning their professional work.

Students transferring into the College, either from another institution or another college in The University of Tennessee, must have at least a 2.0 average.

Majors must complete English 1510-20 with a minimum grade of C in each course before enrolling in any 2000-level (or higher) course in the College.

Majors will not be admitted to upper division (3000 and 4000) courses in the College unless they have an average of at least 2.3 in lower division courses in the College. By major these courses include: Advertising—Communications 1110, Journalism 2215, Advertising 3000; Broadcasting—Communications 1110, Journalism 2215, Broadcasting 2750, Advertising 3000; Journalism—Communications 1110, Journalism 2215-20-30.

Curriculum

The College curriculum offers academic majors in advertising, broadcasting, and journalism. Through core introductory courses, students receive a basic view of the nature of communications.

The freedom of electives provided within the programs permits students to develop specialized interests in a variety of fields. In consultation with an adviser, they may plan individual programs leading to newspaper, magazine, radio, television, public relations, or advertising work. They may prepare for careers in agricultural or industrial journalism. They may select related courses to develop a specialty in writing news of science, government, and business. Others may elect courses to prepare themselves as writers on foods, fashions, and home interests, or they may combine training in communications with work in secretarial science.

Students in other divisions of the University may take certain courses for training in effective communication or for an understanding of the social role of the mass media.

Students who have completed the basic courses in the College may earn three quarter hours of practicum credit. Approval of the adviser and the departmental chairman must be obtained before such work is begun.

Upper Division

Permission of instructor is prerequisite for all 3000 and 4000 level courses, with the exception of Advertising 3000, in the College of Communications.

Course Load

The maximum number of hours which can be taken by an undergraduate without special permission is 19 hours. Permission to take 20 or more hours must be obtained from either the Dean or Assistant Dean of the College.

Cooperative Program

The College, in cooperation with the University-wide Undergraduate Cooperative Education Program, has developed a cooperative program with the media, advertising and public relations agencies, and the communications departments of business organizations where interested students might combine their education with a productive work experience. At present, only a limited number of such opportunities are available. Although other arrangements can be made, a student will enter the program only after completing one or two quarters at the University. A student will alternate with another student, with one working full-time for the employer for one quarter while the other person is in school, etc. The typical program is arranged for a five-year period, with the student spending the final three quarters of the senior year on campus.

The Cooperative Program gives the student an opportunity to gain practical experience, develops a sense of responsibility and cooperation, creates greater interest and incentive in academic studies, provides part of the expenses, and may lead to permanent employment after graduation.

Information concerning this program may
The Bachelor of Science in communications is awarded to majors who complete a program of 194 hours prescribed under departmental requirements listed below. At least 140 of these hours must be taken in courses other than the major and related communications fields. At least 27 of the hours in the major must be taken at The University of Tennessee. Knoxville. Normally, no more than 22 transfer credits in the major will be applied to the 194 hours. Journalism 2210 is the only course in the College that may be taken by correspondence.

NOTE: Students are advised to consult the University's degree requirements as stated in the front section of this catalog as well as the requirements for the college or department.

Undergraduate Curriculum

Advising

Freshman Hours Credit

English 1510-20 8
Natural Science Electives 12

History 1510-20 8

Foreign Language Electives 8

Sociology 1510 4

Communications 1110 3

Economics 2110-20 . 6

Sophomore Hours Credit

Sociology 1520 4
Speech 2311 . 4
Economics 2310 . 4

English Literature Electives 8
Mathematics 1540-50 8
Marketing 3110-20 8
Psychology 2500, 2520 8
Journalism 2215 4
Art 2516 4

Junior

Political Science 2510-20 8
Anthropology Elective 4
Advertising 3600 3
Advertising 3630 4
Advertising 4000 4
Psychology 3310 3
Psychology 3150 5

*Professional Courses 4

General Electives 6
Marketing 4210 3

Senior

Advertising 4360 6
Advertising 4370 4

Computer Science 1410 4

*Professional Courses 14

*Social Science or Humanities Electives 10

General Electives 9

TOTAL: 194 hours

*Students lacking a high school credit of American history must also take History 2510-20 and 2511 or 2521.

#Not required of students with 2 years of high school foreign language credit. They may substitute 8 hours of liberal arts electives from the following: Anthropology 2610-20; Greek 1610-20; History 2510-20; Mathematics 1540-50 or 1640-50 (or equivalent honors courses); Philosophy 1510-20, 2510-20, 3111-21-31-41; Psychology 2000-30-40 (or equivalent honors courses); Religious Studies 2610-20; or they may elect to fulfill the requirement with a foreign language.

*The 8 hours of literature may be selected from English 2510-20-30-40 and 2550-70-80. Upper division literature courses may be selected by students with a B+ average in freshman English at the University.

*Professional courses may be selected from the following: Advertising 3740, 4510-20-30, 4510, 5550; Journalism 3120, 3410, 3710, 3720, 3810, 3910, 4410, 4420, 4590, 4990; Broadcasting 2750, 3890, 4020, 4670, 4680; Accounting 2110-20, Marketing 4410, 4320, 4310, 4440, 4510, 4520, 4710; Speech 3011; Office Administration 4310, 4320.

*Social Science courses include geography, economics, political science, psychology, history, sociology, anthropology, and philosophy (excluding composition courses), and upper division philosophy and religious studies courses. Humanities electives include English, speech and theatre, music (except applied music), art, language culture courses (not grammar and composition) and upper division philosophy and religious studies.

Broadcasting

LOWER DIVISION CURRICULUM

(Required of all broadcasting majors)

Freshman Hours Credit

English 1510-20 8
Natural Science Electives 8

History 1510-20 . 8

Foreign Language Electives 8

Sociology 1510-20 8

Communications 1110 3

Sophomore

*English Literature Electives 8

Economics 2110-20-30 8
Political Science Electives 8

Speech and Theatre 1411 4

Speech 2311 4

Broadcasting 2570 4

Journalism 2215 4

Advertising 3600 3

Psychology 2500, 2520 3

TOTAL: 194 hours

*Students lacking a high school unit of American history must also take History 2510-20 and 2511 or 2521.

#Not required of students with 2 years of high school foreign language credit. They may substitute 8 hours of liberal arts electives from the following: Anthropology 2610-20; Greek 1610-20; History 2510-20; Mathematics 1540-50 or 1640-50 (or equivalent honors courses); Philosophy 1510-20, 2510-20, 3111-21-31-41; Psychology 2000-30-40 (or equivalent honors courses); Religious Studies 2610-20; or they may elect to fulfill the requirement with a foreign language.

#The 8 hours of literature may be selected from English 2510-20-30-40 and 2550-70-80. Upper division literature courses may be substituted by students with a B+ average in freshman English at the University.
**Journalism**

LOWER DIVISION CURRICULUM

(Required of all journalism majors)

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>History 1510-20</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Natural Science Electives</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Foreign Language Electives</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Sociology 1510-20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Communications 1110-20</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&quot;English Literature Electives&quot;</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>&quot;Foreign Language, Mathematics, or Science Electives&quot;</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Economics 2110-20-30</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Political Science Electives</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Speech 2311</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Journalism 2215-20-30</td>
<td>11</td>
<td></td>
</tr>
</tbody>
</table>

**NEWS-EDITORIAL SEQUENCE**

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising 3000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Journalism 3110</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Journalism 3410</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broadcasting 3610</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Science or Humanities Electives</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Journalism from Option A or B</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><em>Liberal Arts Electives</em></td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Senior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Journalism 4410</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Journalism 4510-20-30</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Journalism 4990</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Journalism from Option A or B</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Social Science or Science Electives</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td><em>General Electives</em></td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL: 194 hours


Option B: For students primarily interested in editing. Required: Journalism 3310, 3220, 4420. Electives: Journalism 3510-20-30, 3810, 4190, 4130.

Option C: Any approved combination of Options A and B (including the required courses of one group) for students interested in both writing and editing.

**PUBLIC RELATIONS SEQUENCE**

<table>
<thead>
<tr>
<th>Sequence</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Junior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Journalism 3710-20, 3810</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Journalism 3120 and 3310 or 3910</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Advertising 3000, 3630</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Sociology 3010</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Psychology 2500 and Marketing 4210</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Speech 3011</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><em>Courses from specialization area</em></td>
<td>10</td>
<td></td>
</tr>
<tr>
<td><em>General Elective</em></td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**Senior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Journalism 4510-20-30 or 4990</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Advertising 4360 or 4470</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Journalism 3410, 3830, 4410</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Broadcasting 3650 and 3670</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Political Science 4535-36</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Marketing 3110-20-30</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><em>Courses from specialization area</em></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><em>General Electives</em></td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL: 194 hours

*Specialization Area Options*

a) **Urban or Governmental Public Relations**


b) **Educational Public Relations**


c) **Industrial or Corporate Public Relations**

Required: Industrial Management 3010; Marketing 4140-50; Electives: Speech 3021, 5440; Business Law 4110-20; Economics 3410-20; Educ. C & I 4750; Office Administration 4310-20.

Another area of specialization—and courses to develop it—may be selected with the advisor’s help and approval.

*Students lacking a high school unit of American history must also take History 2510-20.*

*Not required of students with 2 years of high school foreign language credit. They may substitute 8 hours of liberal arts electives from the following: Anthropology 2510-20-30; Geography 1810-20 or 2110-20-30; Mathematics 1540-50 or 1840-50 (or equivalent honors courses). Politics 2510-30-30 or 3111-21-31-41; Psychology 2520-20-30 (or equivalent honors courses); Religious Studies 2610-20; or they may elect to fulfill the requirement with a foreign language.*

*The 8 hours of literature may be selected from English 2510-20-30; 30-40 and 2560-70-80. Upper division literature courses may be substituted by students with a B average in freshman English at the University.*

*Social Science courses include geography, economics, political science, psychology, history, sociology, anthropology, classics (except grammar and composition courses) and upper division philosophy and religious studies courses. Humanities electives include English, speech and theatre, music (except applied music), art, language culture courses (not grammar and composition) and upper division philosophy and religious studies.*

*Eighteen hours of Liberal Arts electives may be selected from the following: Anthropology 2510-20-30; Geography 1810-20 or 2110-20-30; Mathematics 1540-50 or 1840-50 (or equivalent honors courses); Philosophy 1510-20; 2510-20-30, 3111-21-31-41; Psychology 2520-20-30 (or equivalent honors courses); Religious Studies 2610-20.*

*All Specialization areas are subject to approval by the advisor.*

**Departments of Instruction**

Numbers in parentheses following the course titles indicate quarter hours credit offered.

**Communications (259)**


Associate Professor: H.H. Howard, Ph.D. Ohio.

1110 Introduction to Communications (3) Nature, functions, responsibilities of mass communications media and agencies. Survey of newspapers, magazines, radio, television, film advertising, public relations, press associations, and specialized publications. Open to majors who have had no mass communications courses and to non-majors below junior level.

**GRADUATE**

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5100 Introduction to Graduate Studies (3)

5120 Research Methods (3)

5130 Advanced Principles of Mass Communications (3)

5140 Communications Theory (3)

5150 Seminar in Communications Issues (3)

5970 Independent Study (3)

6000 Doctoral Research and Dissertation

6100 Seminar in Communications Theory (3)

6200 Seminar in Communications Topics (3)

6300 Survey Research Methods in Communications (3)

6310 Experimental Research Methods in Communications (3)

6320 Seminar in Historical Research Methods in Communications (3)

**Advertising (012)**

Professors: R.J. Joell (Head), M.A. Wisconsin; D.G. Hileman, Ph.D., Illinois; J.R. Lynn, Ph.D. Southern Illinois.

Associate Professors: A.D. Fletcher, Ph.D.; Illinois; S.K. Zeigler, Ph.D. Michigan State.


3630 Advertising Copy and Layout (4) Ideas and their translation into persuasive words and pictures. Principles and techniques of copy and layouts. Lecture and labs. Prereq: 3000 or Marketing 4150.

3650 Basic Advertising Research (3) Use of research in solving media, creative, and managerial problems in advertising. Introduction to secondary information sources and primary research methodology. Prereq: 3000 or Marketing 4150.

3740 Retail Advertising and Promotion (3) Planning of retail advertising and promotion; practice in retail copy and layout; selecting media; research. Prereq: 3000 or Marketing 4150.


4360 Advertising Media (3) Media markets and audiences. Evaluation of media in relationship to communication needs of advertisers. Prereq: 3000 or Marketing 4150.


4510-20-30 Practicum (1, 1, 1) Prereq: 3000. Satisfaction—No Credit.

**GRADUATE**

5310-20-30 Advertising Studies and Practices (3, 3, 3)

5350 Advanced Advertising Research (3)
Broadcasting (202)

Professor: D.W. Holt (Head), Ph.D. Northwestern.

Associate Professors: H.H. Howard, Ph.D. Ohio; I.G. Simpson, M.S. Syracuse.

Assistant Professor: F.A. Lester, M.A. Tennessee, Certificate, NBC Television Institute, Northwestern; M.K. Sidel, Ph.D. Northwestern.

2750 Introduction to Broadcasting (3) Theory, history, operation, and functions of broadcasting industry and its functions in society.


3510 Radio-Television News (3) Theory and techniques of writing news and features for broadcast media. Editing and rewriting press association dispatches, selecting, editing the news, preparing for broadcast, and feature programs. 2 hrs and 1 lab. Prereq: Journalism 2220 or consent of instructor.

3650 Radio-Television Writing (3) Theory and techniques of writing broadcasting scripts except news and dramas. Special events, interviews, musical segments, radio talks, documentaries, and promotion material.

3670 Television Film News (3) Theory and techniques of making films for television. Film processing and editing techniques. Emphasis on news and documentary broadcasts. 2 hrs and 1 lab.

4010 Speech for Broadcasting (3) Broadcast fundamentals of speech. Emphasis on the delivery of speech(ies) and interpretation of general American, British, Italian, German, and French pronunciation. Prereq: Strongly recommended but not mandatory, Speech 2310, 3050.

4020 Radio Production (3) Study of radio production techniques and practices, past and present. Emphasis on production tools, techniques, and individual production activities. Prereq: 2750 or consent of instructor.

4021 Advanced Radio Production (3) Application of the theories, techniques, and tools of radio production to create programming of a professional level of sophistication and quality. Prereq: 4020 or consent of instructor.

4030 Television Production (3) Overview of elements of television production: cameras, sound, lighting, film, videotape, recording, optics, and studio control. Emphasis on professional broadcast student in mind. Prereq: 4020 or consent of instructor.

4040 Advanced Television Production (3) A semi-independent course in program origination, producing, directing, and performing with orientation to the professional broadcast student. Prereq: 4030 or consent of instructor.

4510-20-30 Practicum (1, 1, 1) Prereq: Consent of instructor. Satisfactory-failure grading only.

4610 Broadcast News Operation (3) Theory and practice in covering local news and public affairs events for radio and television. Gathering and production of news broadcasts, using tools of broadcast person. 2 hrs and 1 lab. Prereq: 3610 and 3670 or permission of instructor.

4670 Radio-Television Management (3) Business policies and practices of networks and stations. Departmental functions, cost and income figures, sales techniques, promotion, advertising agencies, and governmental regulations. Lectures by commercial broadcasters. Prereq: 2750 or consent of instructor.

4680 Broadcast Sales Management (3) Problems and practices of television and radio sales, case studies in sales development, pricing, promotion, and other areas of sales management. Prereq: 2750 or consent of instructor.

GRADUATE

5410 Educational Broadcasting (3)

5510-20-30 Creative Projects (3, 3, 3)

5610 Public Affairs Broadcasting (3)

5620 Broadcast Law and Regulations (3)

5630 Broadcast Documentary Writing (3)

5650 Radio-Television Program Development (3)

5970 Independent Study (3)

School of Journalism (594)

Professor: D.C. Cade (Director), Ph.D. Iowa; J.B. Haskins, Ph.D. Minnesota; J. Hohenberg, B. Litt. Columbia; J.E. Kelshoven, M.A. Louisiana State; J.M. Lain, M.A. Iowa; B.K. Leiter, Ph.D. Southern Illinois; W.C. Tucker (Emeritus), M.A. West Virginia.

Associate Professors: J.A. Cope, Ph.D. State; G.A. Everett, Ph.D. Iowa; S.L. Puett, M.S. Tennessee; E.F. Shaw, Ph.D. Stanford; F.B. Thornburg, Jr., M.A. Florida.

Assistant Professor: J.N. Adams, M.S. Tennessee.


2210 Writing for Mass Media (3) Principles and practice of writing for major types of mass communications media. Not available to majors in the College of Communications.

2215 Basic News Writing (4) Information gathering and writing techniques with deadline pressure. Observation, interviewing, speech reporting for print and broadcast mass media. 3 hrs and 1 lab. Prereq: Communications 1110 and typing proficiency of 35 wpm.

2220 Reporting (4) Methods of gathering and writing facts for mass media. Emphasis on news and features. 3 hrs and 1 lab. Prereq: 2210.

2230 Editing for Mass Media (3) Copyreading and methods of editing types of copy for print and broadcast media. 2 hrs and 1 lab. Prereq: 2220.

2990 Applied Mass Communications (3) Principles and practices of newswriting, reporting and editing for mass media. Intensive accelerated laboratory course for students admitted to graduate program who have had no previous journalism or broadcast training or professional experience.

3110 Communications History (3) Development of newspapers, magazines, and broadcasting in America. Biographies of major journalists.

3120 Writing Feature Articles (3) Instruction and practice in writing feature articles for newspapers, trade journals, and magazines. Market analysis and free-lance selling. Prereq: 2210 or consent of instructor.

3210 Advanced Reporting (3) Gathering and writing news in depth on current issues and concerns under deadline pressure. Use of VDT terminals. Prereq: 2230.

3220 News Editing and Display (3) Instruction and practice in making up newspapers and magazines. Advanced work in copyreading, rewriting, and headlining. Picture editing. 1 hr and 2 labs. Prereq: 2230.

3310 Graphic Arts in Journalism (3) Printing equipment and production methods. Typography, lettering, offset, gravure, engraving, stereotypes, proofreading, copyfitting, and current developments in mechanical processes.

3410 Communications Law (3) Statutory law and judicial precedents affecting mass communications media: libel, derogation of court, invasion of privacy, copyright. Broadcasting, advertising, and postal regulations.

3510-20-30 Practicum in Journalism, I, II, III (1, 1, 1) Supervised experience in newsgathering and writing. Prereq: 2220.

3560 Investigative and Specialized Reporting (3) Investigative and interpretive reporting of complex or specialized subjects to place news in perspective or to clarify situations. Emphasis on writing for publication. Prereq: 2220.

3710 Public Relations (3) Theories and principles of public relations. Overview of PR as a management tool of business, government, institutions, and organizations.

3720 Public Relations: Advanced (3) Publicity organization, techniques, and tools. Preparation of communications materials to gain support from target publics. Prereq: 3710.

3730 Public Relations Cases (3) Case studies and application of public relations principles to problems in business and industry, government, institutions, organizations, trades and professions. Prereq: 3720.

3810 Specialized Publications (3) Business and industrial publications. Individual projects on newspapers and magazines in fields of agriculture, business and industry, engineering, home economics. Prereq: 2230 or consent of instructor.

3910 Basic Photography (3) Principles, policies, and procedures of using pictures in an editorial medium. Press and reflex cameras and flash photography. Darkroom techniques in developing, enlarging, printing, 1 hr and 2 labs. Prereq: Consent of instructor.

4130 Editorial Writing (3) Analysis of editorial policies, practices, pages. Writing of editorials, columns, paragraphs, and interpretative articles. Prereq: Senior standing.

4310 Reporting Public Affairs (3) Reporting news of courts, politics, government, finance, labor, and social agencies. 2 hrs and 1 lab. Prereq: 2230 and senior standing.


4420 Newspaper Management (3) Daily and weekly business operations. Developments in newspaper management.

4510-20-30 Practicum in Journalism, IV, V, VI, (1, 1, 1) Supervised experience in news writing and editing. Prereq: Senior standing or consent of instructor.

4810 Journalism in the High School (3) Functions and methods of publications. Staff organization, writing and editing techniques, editorial problems, and business management.

4910 News and Feature Photography (3) Advanced principles and methods in black-and-white photography. Emphasis on news and feature photography and picture stories. Prereq: 3910 or permission of instructor.

4950 International Communications (3) Communication of news and opinion among nations and international organizations of political and economic systems: world news organizations; the press as a factor in international affairs; barriers to the flow of information; comparison of world press systems.

4990 Problems in Research (3) Independent work course for seniors. Intensive study of some phase of the major field, investigative procedures, report writing.

GRADUATE

5210 Government and the Press (3)

5250 Public Opinion and Mass Media (3)
5510-20-30 Writing and Editing Projects (3, 3, 3)
5560 Magazine Article Writing (3)
5710 Studies in Public Relations Communications (3)
5810 Magazine Editing and Production (3)
5950 Communications and International Development (3)
5970 Independent Study (3)
Division of Continuing Education, Knoxville

Joseph P. Goddard, Dean
William D. Barton, Assistant Dean

The Division of Continuing Education at Knoxville extends the academic programs and services for all colleges and schools on campus to the people in the area served by The University of Tennessee, Knoxville. In addition, the Division cooperates with all other campuses of The University of Tennessee in extending academic programs and services to all citizens of the state.

Conferences and Institutes

Director:
F.A. Thurman, B.A. Tennessee.
Associate Director:
R.H. Rader, M.S. Tennessee.
Assistant Director:

Conferences, institutes short courses and workshops from one day to two weeks or more in length are planned and administered by this department and the related academic programs. Each program is specifically designed for the needs of the group being served and may be held on the University campuses or at any other place in the state where adequate facilities and sufficient interest exist.

Off-Campus Programs

Director:
Assistant Director:

The Department of Off-Campus Programs is a service-oriented administrative unit. The students toward whom that service is directed are the part-time adult students who live some distance from the UTK campus and who take part or all their courses at off-campus locations.

University Evening School (Knoxville and Oak Ridge)

Director:
Assistant Director:
J.C. Sekula, Ph.D. Tennessee.
Assistant Professor (full-time only):
G.M. Fisher, M.S. Tennessee.
Instructors (full-time only):
A.J. MacCabe, M.S. SUNY at Albany;
C.B. Mamantov, B.S. Louisiana State.

The University Evening School with the cooperation of academic colleges and departments administers credit classes and supports activities for those students attending in the late afternoon and evening. Programs are offered enabling working adults to pursue their educational interests and goals.

Workshops and Non-Credit Programs

Director:
Assistant Director:
R.S. Gordon, M.S. Tennessee.

The Department of Workshops and Non-Credit Programs coordinates credit workshops offered through various academic units of the University. Additionally this department administers the non-credit courses offered both on and off campus. Non-credit courses provide opportunities for remedial, in-service, and leisure-type educational programming for the Knoxville community.

Certain non-credit courses are approved for veteran’s training. For specific information, contact the Department of Workshops and Non-Credit Programs.
College of Education

William H. Coffield, Dean
E. Dale Doak, Associate Dean for Undergraduate Studies
Helen B. Watson, Acting Associate Dean

Teacher education is historically a major function of The University of Tennessee. Beginning in 1903, when the first courses for teachers were offered, the University has increasingly fulfilled its responsibility to provide schools with competent teachers and service personnel and to improve the teaching profession by continually upgrading its membership. The College of Education was established in 1926, and all teacher preparation programs at The University of Tennessee are now coordinated within its seven departments and its School of Health, Physical Education, and Recreation.

The College of Education holds membership in the American Association of Colleges for Teacher Education. All certification and degree programs through the doctoral level are fully accredited by the National Council for Accreditation of Teacher Education, the Southern Association of Colleges and Schools, and the Tennessee State Department of Education.

The faculty of the College of Education is committed to performing three major functions: (1) to provide professional preparation for teachers, administrators, and school service personnel at undergraduate and graduate levels; (2) to collaborate with school personnel, educational agencies, professional groups, and others interested in the evaluation and improvement of educational opportunities programs, and services; and (3) to promote and conduct experimental and research studies in education.

The teacher preparation programs represent utilization of University-wide resources and cooperation of all appropriate units. Certain requirements are of basic importance: a broad cultural background in the arts and sciences (general education), mastery of professional knowledge and skills, and thorough preparation in specific teaching fields. Through a carefully planned program of combined academic and direct experiences, the prospective teacher acquires a depth and breadth of knowledge and understanding superior to that of the typical college graduate—superior in cultural and citizenship appreciation as well as in professional and scholarly accomplishment.

The Claxton Education Building contains many modern and functional facilities for the professional training of teachers. Classrooms, laboratories, seminar rooms, faculty and administrative offices, the instructional materials center, the Bureau of Educational Research and Service, the School Planning Laboratory, and facilities for special activities such as observation and experimentation are located in this air-conditioned building.

Special Services

Bureau of Educational Research and Service. Four major types of activities—research, development, educational services, and publications—are channeled through the Bureau of Educational Research and Service (BERS), located in Claxton Education Building. The research activities relate to the development of research proposals, conducting research, and assisting others in development of research proposals in the College of Education. Developmental activities relate to change efforts in curricular content and instructional methodology. Educational services include a wide list of activities such as in-service educational programs, consultant services, educational services and administrative training programs. Official publications of the College of Education are developed through the Bureau. A limited number of graduate student assistantships are available. The Educational Opportunities Planning Center, the Research Coordinating Unit, and the School Planning Laboratory are integral parts of the Bureau of Educational Research and Service.

EDUCATIONAL OPPORTUNITIES PLANNING CENTER

The Educational Opportunities Planning Center (EOPC) works with school districts in the Tennessee-Kentucky area to help meet their desegregation-related needs by assisting with needs assessment and by helping develop plans to meet the needs. A new component was added during the 1975-76 year to deal with sex discrimination in the school systems of Tennessee and Kentucky. Staff follow through with in-service training of local district personnel, with such training directed toward solutions of curricular, human relations, and other types of problems created or compounded by school desegregation and sex discrimination. On-site evaluation of locally installed practices and continuing cooperative evaluation of the progress of local programs are additional major efforts. This program is funded by the U.S. Office of Education.

RESEARCH COORDINATING UNIT

The Research Coordinating Unit (RCU), located on campus at Alumni Hall, is available for use by students, faculty, administrators, and all vocational educators in the state of Tennessee.

The primary objectives of the RCU are to collect and disseminate information, coordinate research, stimulate research, and conduct research in selected areas. The RCU has a library with the complete series of ERIC Documents stored on microfiche. Microfiche reader-printers are available in the library and portable readers may be checked out.
General Information

Admission to the College

For transfer into the College of Education after completion of the freshman year, a minimum grade average of 2.0 (C) is required.

Course Load—Permission for more than 20 hours in a quarter must be obtained from the Associate Dean for Undergraduate Programs. A normal course load in the College is 16-18 hours.

Admission to Teacher Education

All students who desire teacher certification, whether enrolled in the College of Education or other colleges, are required to apply for admission to the Teacher Education Program. Formal application for admission to the Teacher Education Program should be made during the second or third quarter of the sophomore year. Application forms may be obtained in the Office of the Associate Dean for Undergraduate Programs on the day of the test. Special note: Students must be admitted to the Teacher Education Program at least one quarter before taking 3010, 3030 and certain other courses in the College.

Student procedures for applying for admission to the Teacher Education Program are: (1) Obtain application form in the Dean's office during registration time at the beginning of the quarter. Speech and hearing tests are usually administered on registration day. (2) Proceed to the Speech and Hearing Center (at the corner of Yale and Stadium Drive) on one of the specified dates between the hours of 9 a.m. and 4 p.m. and complete the speech and hearing tests. Leave the application form (scan sheet) with the test administrator.

The College of Education will be informed of the speech and hearing test results. Those applicants having satisfactory speech and hearing test results, a grade point average of 2.0 or above at the termination of the previous quarter (if admitted to the University prior to fall, 1966, a 2.00 GPA is sufficient), and then academic advisor’s consent will be informed of their acceptance by a letter from the Associate Dean for Undergraduate Programs sometime during the quarter. Students not qualifying for acceptance will also be informed of their status by letter. The academic advisor’s consent and confirmation of the grade point average is obtained by the Dean’s office and does not entail action by the student. If a student takes the speech and hearing test and does not have the required grade point average at the time, but subsequently raises it, it will be necessary to return to the Associate Dean’s office and reapply for admission to the Teacher Education Program. You will not be admitted automatically upon raising your grade point average to the required level.

The following criteria must be met by all students applying for admission to teacher education:

Scholastic Achievement—a cumulative grade point average of 2.2 (a 2.0 GPA if admitted to the University prior to fall quarter, 1966).

Physical Fitness—satisfactory ratings in general health, speech, hearing, and sight.

Personal-Social-Ethical Fitness for Teaching—satisfactory ratings from faculty advisors.

Admission to Student Teaching

Application for student teaching must be filed no later than January 1 of the academic year preceding the actual experience. For example, if a student plans to student teach during the 1978-79 academic year he must make application by January 1, 1978. Application forms may be obtained in the Office of the Director of Student Teaching, 212 Claxton Education Building.

Students majoring in special education—speech and hearing and in special education—hearing impaired are required to make application for clinical practice or student teaching in the Department of Special Education and Rehabilitation and in the Office of the Director of Student Teaching.

Before admission to the student teaching quarter, the student must have fulfilled the following requirements:

1. Full admission to the Teacher Education Program no later than the quarter preceding student teaching (all conditions relative to admission satisfied).
2. Completion of the professional core courses (Education 3010, 3020, 3030 and Educational Psychology 2430 or 3810).
3. Completion of at least 50 percent of course work in the endorsement area(s).
4. Completion of the special methods courses at The University of Tennessee.
5. Completion of the Student Teaching Seminar and the September experience (non-credit).
6. Senior standing and a minimum grade point average of 2.0 on work completed at The University of Tennessee.

The fifteen-hour student teaching experience is evaluated on a satisfactory-no credit basis and the hours are included in the University policy requiring a 2.0 in the last 45 hours worked.

The most important criterion in placing student teachers in the public schools is the value of the experience for preparing for teaching. The University cannot guarantee the geographic locale desired by the student though effort will be made to follow the student’s wishes. The University maintains student teaching centers in East Tennessee communities some of which are considerable distance from Knoxville. Married students will be placed as near their homes as possible in order to preserve family life.

Substitutions

It is sometimes necessary and advisable for students to substitute other courses for those required in a particular curriculum. This is particularly true of students who transfer to the University of Tennessee, College of Education from another college or university. The general test of whether a substitution would be appropriate is “does the course you wish to substitute meet the spirit of the course requirement?” That is, “is the content similar or perhaps more appropriate to your needs?”

To initiate a substitution request the student should visit with his advisor first. If they agree that the substitution is an appropriate one, the substitution request form should be forwarded to the office of the Associate Dean for Undergraduate Programs, Claxton Education Building 212. Approved petitions are forwarded to the Dean of Admissions for further approval, and for filing with the Undergraduate Council.

Recommendation for Certification

The application for a professional teacher’s certificate should be completed early in the final quarter before graduation. Application forms may be obtained in the Registrar’s Office, 215 Student Services Building and 212 Claxton Education Building. Tennessee State regulations stipulate that the applicant for a professional certificate must be recommended by the teacher-training institution. The Dean of the College of Education is the official designated to recommend University of Tennessee graduates for teacher certification. To receive this recommendation, the applicant must have fulfilled the following requirements:

1. A minimum cumulative grade point average of 2.0.
2. Satisfactory performance of the student teaching experience.
3. A minimum grade point average of 2.0 in the teaching field(s).
4. Completion of a methods course in each area of endorsement.
5. Fulfillment of all special recommendations of the Committee on Standards and Admissions.
Graduate Programs

The College of Education, through the Graduate School, offers programs leading to the Master of Science degree, the Master of Education degree, the Master of Arts in College Teaching degree, the Master of Public Health degree, the Specialist in Education (advanced graduate) degree, the Doctor of Education, and the Doctor of Philosophy degrees. For further information, see the Graduate School Catalog.

Undergraduate Curricula

The College offers courses of study leading to the Bachelor of Science in Education and to eligibility for teacher certification in Tennessee and in those states which grant reciprocity privileges to graduates of institutions accredited by the National Council for Accreditation of Teacher Education (NCATE).

A core of studies provides the foundation for specialization in all teacher education curricula. In addition, approved concentrations must be completed in subject fields specifically related to the public school curriculum. A choice is to be made among programs leading to certification for graduation at one of three levels: elementary (kindergarten-9), secondary (grades 7-12), or special subjects in grades 1-12.

Courses in library science are available to students who are interested in beginning positions in any library or in preparation for further graduate study in professional librarianship. The minimum requirements for full-time librarianship in any size school in Tennessee can be met through completion of the basic library service courses (3510, 3520, 3530, 4140, 4150, 4270, 4330, 4750).

Endorsement as a librarian requires 27 quarter hours in library science. At the undergraduate level, only a minor in library science is available. Students in the College will select an appropriate curriculum from those outlined under the undergraduate curriculum section. Students interested in this program should consult with a member of the faculty of the Graduate School of Library and Information Science.

Students should work closely with faculty advisers in planning programs of study. The chosen curriculum must be followed as outlined to assure graduation and certification, and any proposed substitution for a required course should be filed for approval before the end of the junior year.

NOTE: Students are advised to consult the University's degree requirements as stated in the front section of this catalog as well as the requirements for the college or department.

I. Curricula for Elementary Teachers

A. Kindergarten through Grade 9

GENERAL EDUCATION

89 hours

Communications (12 hours)

English 1510-20 (4), 44; Speech 2011 (4) or 2311 (4) or any Speech electives

Health and Physical Education (18 hours)
P.E. 3450 (3), School Health 3610 (3), Psychology 2500 (4). P.E. and Health electives (6 hours) must include minimum of 3 hours in each area.

Humanities (12 hours)

Literature 6 hours; the remaining four hours must be chosen from foreign language (above introductory level), philosophy, religious studies, Art 1815 or 1825, or Music 1210 or 1220.

Mathematics (9 hours)

Mathematics 2110, 2120, 2130.

Natural Science (20 hours)

Biology 1210, 1220 (1230 or Botany 1110, 1120), 8 or 12 hours in physical science. Recommended series are Physics 1410, 1420 (1430) or Geology 1510-20 or Astronomy 2110, 2120, 2130, Chemistry 1110, 1120, (1130).

Social Studies (18-20 hours)

History (4 hours)—it is recommended that the history course be taken at the sophomore level. Electives (14-16 hours) from anthropology, economics, geography, political science, and sociology. Minimum of 3 areas are required.

CORE PROFESSIONAL COURSES

9 hours


SPECIALIZED COURSES

18 hours

Educational Psychology 2430 (3 hours), Art Education 2100, 2110 (6 hours); Music Education 2100, 3110 (8 hours); Educ. C & I 3510 (3 hours).

AREAS OF CONCENTRATION

15-16 hours

One or more areas of specialization are to be chosen from the following:

Art Requirements plus 15-16 hours from Art, RACID, Art Education.

Black Studies Courses from at least 3 different fields must be included. See Black Studies for specific course possibilities.

Child Study Requirements plus 15-16 hours from Child Development, Psychology, Educational Psychology.

Early Childhood Education (Kindergarten-Grade 3) To Include Educ. C&I 4300, 4450, 4451, Health Elective (3); CFS 3120, 3210; Student teaching in kindergarten and grades 1-3.

Foreign Language 16 hours


Humanities Requirements plus 16 hours

Library and Information Science Requirements plus 15-16 hours. If certification is desired in Library Service, the student must complete 24 hours in Library and Information Science 3520-30, 4140, 4270, 4330, 4750.

Mathematics Requirements plus 15 hours.

Middle Schools 15-16 hours: to include Educ. C & I 4340; Ed. Psychology 3610; Educ. C & I 3520 or 4280; Educ. C&I 3560 or 3653, or 3654 or 3657 or 3658 (a second methods course); Educ. C & I 4350 or 4351 or 4352, lab experience in middle school.

Music Requirements plus 16 hours.

Science Requirements plus 16 hours.

Social Science Requirements plus 15-16 hours.

Special Education 15 hours. (If certificate is desired in Special Education areas of Crippling and Special Health and/or Partially Seeing additional hours are required, including one additional quarter of student teaching.

a) Crippling and Special Health Conditions

(18 hours) Special Education and Rehabilitation 4150, 3331, 4830, 4821; Child Development 4610 or Human Services 2690; and 3 hours from Special Education 3520, 4130, 4160 or 4250.

b) Partially Seeing (6 hours) Special Education and rehabilitation 4110, 3333, 4850, 4923, 6 hours from Special Education 3520, 4110, 4120, 4150, 4250, 4302, Office Administration 2110 (for those lacking high school credits in typewriting).

ELECTIVES

21-25 hours

TOTAL MINIMUM REQUIRED

191 hours

*Requires admission to Teaching Education Program.

B. Nursery School through Grade 3.

GENERAL EDUCATION

83 hours

Communications (12 hours)

English 1510-20; Speech 2011 or 2311.

Humanities (12 hours)

Literature (4); Music 1210 or 1220 or Art 1815 or 1825; philosophy or religious studies (4).

Natural Sciences (16 hours)

Biological science (in series or combination) (8). Physical science (in series or combination) (8).

Mathematics (9 hours)

Mathematics 2110-20-30.

Social Sciences (18 hours)

History (4); Child and Family Studies 4610; Economics 2110; Anthropology 2530 or 3410 or Human Services or Sociology 4320 or 4510; Elective (from anthropology, economics, geography, human services, political science, sociology).

Interdisciplinary Studies in Home Economics (16 hours)

H.E. 1510, 1520, 2510, 3510.

SPECIALIZED COURSES

31 hours

P.E. 3450, 3660; Pub. Health 3210; Health Elective 3610; Music Ed. 2100, 3110; Educ. C&I 4333, CFS 3120.

FOUNDDATIONS COURSES

15 hours

CFS 1500, 3210; Select One; CFS 3220, 4230 or 4350; Select Two: Educ. C&I 3010, 3020, 3030.
II. Joint Elementary-Secondary Education Certification
(Mathematics + B.S. Degree)

GENERAL EDUCATION
90 hours

English (12 hours)
Throughout the four years.

Mathematics

Electives

TOTAL MINIMUM REQUIRED
91 hours

*Required three hours required.

III. Curricula for Secondary Education (7-12)

GENERAL EDUCATION
69 hours

English

Mathematics

Science

Health and Physical Education

Electives

TOTAL MINIMUM REQUIRED
198 hours

III. Curricula for Secondary Education (7-12)

GENERAL EDUCATION
69 hours

Communications

Mathematics

Science

Health and Physical Education

Electives

TOTAL MINIMUM REQUIRED
198 hours

*Required admission to Teacher Education Program.

*Required for Student Teaching.
D. Psychology Education
1. A concentration and endorsement in Psychology shall require a minimum of 30 quarter hours—12 hours upper division distributed as follows:

   a. Psychology 2500-30...
   b. Psychology 2500...4
   c. Psychology 3120...
   d. Psychology 3150...
   e. Psychology 3210...
   f. Electives—14 hours selected from:
      Psychology 2500, 2550, 2540, 2510, 2330, 3319, 3430, 3550, 3650, 3220, 3450, 3250, 4690, 4950; Psychology or Ed. Psych. 4840; Ed. Psych. 3110, 4110, 4130, 4800, 4880, 4890.

2. Two minors (18-27 hours for a total of 45 quarter hours) are required, with a minimum of 6 hours upper division.

At least one of the two minor areas must meet Tennessee minimum endorsement requirements for the subject area.

E. Science Education
1. Area Majors in Science (72 hours minimum)

   a. Biological Science (72 hours minimum)
      1. Biology 1210-20-30 or Botany 1110-20-40
   b. Physical Science 2520-30-30 (12 hours)
   c. Microbiology 1010-4 (4 hours)
   d. Chemistry (excluding 1410 series) (12 hours)
   e. Biological education shall require a minimum of 32 semester hours, approved electives must be selected from one or more of the following: biological sciences: biochemistry, botany, microbiology, zoology, physical science: chemistry. Minimum requirement in biological science consists of 56 hours (12 hours chemistry required, excluding 1410 series).

Endorsements: Biology (Life Science) and General Science

   a. Earth and Environmental Sciences (72 hours minimum)
      1. Includes 12 hours biological science required, and 14 hours science electives selected from among: astronomy, chemistry (excluding 1410 series), geology, geophysics, and psychology.
      2. Geology (16 hours)
      3. Chemistry (6 hours)
      4. Physics (24 hours)
      5. Earth Science, General Science
      6. Natural Science (72 hours minimum)
         1. Basic requirement of 12 hours in each of the following subjects:
            a. Biology 1210-20-30 or Botany 1110-20-40
            b. Chemistry series (excluding 1410 series)
            c. Geology (excluding Geology 1000)
            d. Geology (excluding 1410 series)
            e. Mathematics (excluding 1020, 2020 and 2110-20-30)
      7. Credit for only 12 hours math accepted in the program.

Endorsements: Earth Science, General Science

   a. Natural Science (72 hours minimum)
      1. Basic requirement of 12 hours in each of the following subjects:
      2. Biology 1210-20-30 or Botany 1110-20-40
      3. Chemistry series (excluding 1410 series)
      4. Geology (excluding Geology 1000)
      5. Geology (excluding 1410 series)

   b. Mathematics Education

   c. Special education
      1. Special education 3150.

   d. Subject Majors in Science
      1. The only single subject majors in science leading to teacher certification are chemistry and physics.
      2. The single subject major requires 45 quarter hours: Minors 27 quarter hours.

Endorsements: Major Subject

1. Only one freshman level biological science series permitted.
2. Plant and animal science courses required.
3. Certification in any area.

F. Social Studies Education
Program

   a. Broadfield Social Science (Major 72 hours)
      1. Certification includes economics, geography, history, political science and sociology.
      2. 28 quarter hours in history, including 1510-20 and 2520-20, and 12 hours in world and/or American history.
      3. 8 quarter hours in each of the following: geography, political science, and sociology.
      4. 4 quarter hours in anthropology.
      5. 9 quarter hour courses in economics, including 2110-20 and an elective.
      6. 7-8 additional quarter hours in the above-listed or related fields.

   b. Social Education Program I
      1. Specific subject major (45 hours plus 27 hours for a minor).

   c. Minors
      1. A minor is defined as 27 quarter hours in a single subject area, i.e., biology, history, French, psychology, speech, etc. A minor does not meet certification requirements in all cases.

IV. Art and Music Education

A. Art Education

   a. GENERAL EDUCATION
      1. 67-68 hours
      2. Communications (11-12 hours)
      3. English 1510-20 (4, 4) and 3-4 hours in speech.

   b. Health and Physical Education (9 hours)
      1. Activities courses in physical education plus School Health 3510.

   c. Humanities (15-16 hours)
      1. Art History 1815 and 1825, one literature course, one philosophy course, one foreign language above 1000 level, upper division history, library service, religion or music.

   d. Mathematics (4 hours)
      1. Natural Science (12 hours)
      2. Any twelve hours from the biological and/or physical sciences.

   e. Psychology (4 hours)
      1. Social Studies (12 hours)
      2. Any twelve hours from at least two areas.

ORIGINAL MINIMUM REQUIRED: 181 hours

   a. Required admission to teacher Education Program.

B. Music Education

   a. GENERAL EDUCATION
      1. 65-67 hours
      2. Communications (11-12 hours)
      3. English 1510-20 and 3-4 hours in speech.

   b. Health and Physical Education (9 hours)
      1. Activities courses in physical education plus School Health 3510.

   c. Humanities (14 hours)
      1. Music 2320-30, literature course, and one elective from art, anthropology, literature, foreign language beyond introductory level, upper division history, library service, or philosophy.

   d. Mathematics (4 hours)
      1. Natural Science (11-12 hours)
      2. Three courses from the biological and/or physical sciences, to include Physics 1810.

   e. Psychology (4 hours)
      1. Social Studies (12 hours)
      2. Any 12 hours, to include at least two areas.

   f. SPECIALIZED PROFESSIONAL EDUCATION
      1. 21 hours
      2. Student teaching: 4710*, 4720*; Educ. Psych. 2430 or 3150, and a senior elective in the College of Education.

   g. Teaching Areas and Electives
      1. 86-108 hours
      2. Concentration in Vocal Music (Voice Principal)
         1. 25 quarter hours in Music Education: 1010-20; 2110; 2411; 2421; 2431; 2433; 3130; 3150; 4240; 4250.
      3. 55 quarter hours in Music: 1111-21-31; 1113-23-33; 2111-21-31; 2113-23-33; 2430; piano 22 hours; plus piano proficiency and required ensembles.

   h. Concentration in Elementary Music Education (Voice Principal)
      1. 31 quarter hours in Music Education: 1010-20; 2110; 2411; 2421; 2431; 3141-42; 3150; 4241-42-43; 4450.
      2. 49 quarter hours in Music: 1111-21-31; 1113-23-33; 2111-21-31; 2113-23-33; 2430; voice 22 hours; plus piano proficiency; required ensemble participation.

   i. Concentration in Elementary Music Education (Piano or Organ Principal)
      1. 31 quarter hours in Music Education: 1010-20; 2110; 2411; 2421; 2431; 3141-42; 3150; 4240; 4241-42-43; 4450.
      2. 55 quarter hours in Music: 1111-21-31; 1113-23-33; 2111-21-31; 2113-23-33; 2430; piano or organ 22 hours; voice 6 hours; required ensemble participation.

   j. Concentration in Instrumental Music
      1. 35 quarter hours in Music Education: 1010-20; 2411-12-13; 2421-22-23; 2431-32-33; 3130; 3150.
      2. 61 quarter hours in Music: 1111-21-31; 1113-23-33; 2111-21-31; 2113-23-33; 2430; 3122 or 4124; principal instrument 22 quarter hours; secondary instrument 6 quarter hours; piano proficiency; participation in required ensembles.

   k. Music Education 4460 is required for all students whose principal instrument is wind or percussion.

TOTAL MINIMUM REQUIRED: 181-208 hours

GENERAL REGULATIONS FOR ALL MUSIC EDUCATION STUDENTS

   a. All students must pass a theory examination given by the music department either during the first or second year.

   b. Students must take aural and sight singing exams, sight reading, and dictation prior to registration in Music Education curricula.

   c. Requires admission to Teacher Education Program.

V. Health, Physical Education, Recreation, and Safety

A. Concentration in Elementary Physical Education (1-9)

   a. GENERAL EDUCATION
      1. 1-9 hours
      2. Communications (12 hours)
      3. English 1510-20 and Speech 201 or 231.
Humanities (16 hours)
English 2510 or 2520 plus 12 hours of electives. Sociology (16 hours)
Sociology 2000 plus 12 hours of electives.

Natural Science (24 hours)
Chemistry 1510-20, Physics 1450, and Zoology 2920-30 plus 3 hours of Math.

Psychology (4 hours)
Psychology 2500

Health and Physical Education (12 hours)
School Health 3000 and 3420; Physical Education Activities (6 hours): including P.E. 2012, 1020, 2022, 1022, 3180.

CAREER PROFESSIONAL EDUCATION 9 hours
Ed. C & I 3101*, 3020, 3300*

SPECIALIZED PROFESSIONAL EDUCATION
27 hours

TEACHING AREAS AND ELECTIVES 72 hours

Elementary Physical Education (48 hours)
P.E. 1010, 1011, 3610, 3650, 3670, 3680; 3320, 4110; 3430, 3330; 4440; 3260; and 6 hours of P.E. activity electives.

Cognate Course and Electives (24 hours)
CFS 3210 and 21 hours to be used for endorsement or free electives. (None of the 21 hours may be taken in lower division physical education.)

TOTAL MINIMUM REQUIRED 196 hours

B. Minor in Elementary Physical Education
(Open only to students with a concentration in Secondary Physical Education.)
P.E. 3540, 3550, 3560, 3570, 3650, 3660; 3670; 3680; 4150; 3260.

C. Concentration in Secondary Physical Education (7-12)
GENERAL EDUCATION 89 hours
English 1510-20; Speech elective (4); Chemistry 1510-20 suggested; Physics 1450; Zoology 2950-30 and 4944-4949; 3650, 3660; 3670; 3680; 4150; 3260.

Mathematics (16 hours)
Mathematics 1510 and 4530

At least 9 additional hours selected from Sociology 1520, 3130, 4510, 4330, 4680, or Rural Sociology 3420 or Human Services 2690, 4900, 3300 or Political Science 2530, 2020, 2510-20, 3950, 3955, 4900-50-50.

Behavioral Sciences (16 hours minimum)
Psychology 2500

At least 12 additional hours selected from: Psychology 2520, 3120, 3550, 3650, 4550, 4610 or Educational Psychology and Guidance 2430, 2510, 2520, 4130, 4900, or CFS 2110, 3210, 3220, 4620, 4810.

Communications (15 hours minimum)
English 1510-20, Speech 2311

At least 3 additional hours selected from: Speech 2351, 3021, Communications 1110; Journalism 2210, 3710; Educ. C & I 4750.

Health and Safety (3 hours minimum)
School Health 3210 or Safety 3520.

Humanities (16 hours)

At least 4 hours selected from English 2000- and above level.

At least 9 hours selected from history, anthropology, economics, geography; political science; sociology; or educational psychology.

At least 9 additional hours selected from English 2000-level and above. History 2520-20, 2530, 2540, Anthropology 2530, Geography 3660, Classics 2810, 2820, 2510-20, 3210-20, 3330, 4010, Philosophy 1510-20, 2530, 3315, 3630, 3910, 2550, 2555, Religious Studies 2610, 2611, 2620.

Arts and Humanities (minimum 4 courses from at least 2 of the following areas: Music 1210-20, 4241-51, 4260, 4270; Theatre 1510, 2522-53-54, 3262-63; Art 2715, 1815-25; P.E. 3090, 2070 (Dance).)

PROFESSIONAL RECREATION EDUCATION 22-30 hours
Recreation 1100, 3140, 3120, 3260, 4130, 4220, 3860, 4500.

FIELD STUDY 18-33 hours
Recreation 1000, 2000, 3000, 4000.

SKILLS AREAS 18-24 hours
Student selects two of the following: Music 1150 through 1596 series, membership in choral or instrumental group.


Sports: Physical Education—2 team sports, 3 individual sports.

Free Electives 15 hours to be added to above requirements to total minimum of 192 hours for the degree.

TOTAL MINIMUM REQUIRED 192 hours

G. Concentration in Public Health
GENERAL EDUCATION 86 hours
English 1510-20 and Speech 2311.

Health and Physical Education (11 hours)
Public Health 3300 Public Health 3210 Physical education electives.

Humanities (16 hours)
English—any 4 hours from literature Anthropology or Sociology 3300 Philosophy or religious studies elective (4) Art or music elective (4).

Mathematics (4 hours)

Natural Science (20 hours)
Chemistry or physics sequence (4, 4, 4) Biology 1220 or Zoology 2690-30.

Psychology (4 hours)
Psychology 2500.

Sociology (15 hours)
Economics 2110 Geography 2110 or 2120 or Political Science 2510-20 History 1510-20 or 2510-20 Sociology 1510.

CORE PROFESSIONAL EDUCATION 9 hours

SPECIALIZED PROFESSIONAL EDUCATION 24 hours
Education C & I 4750 Education C & I 4720 Public Health 4700, 4710, 4720 School Health 3650 (3) Educational Psychology 3810 (3).

TEACHING AREAS AND ELECTIVES 71 hours
Public Health Required Courses (12): 3310, 3320, and 3330
Public Health Electives (6)
Public Health Required Courses (9): 3410, 3420, 3460
Safety Required Courses (3): 3250 (3) Biology 1230 Microbiology 2010 Psychology 3150 Sociology 1520 Sociology 2120 Nutrition 1220 Special Electives (19 hours)

Special Note: If some of the specific courses cited above are dropped or changed, they may be substituted with an equivalent course.

TOTAL MINIMUM REQUIRED 190 hours

*Requires admission to Teacher Education Program.

H. Concentration in School Health
GENERAL EDUCATION 86 hours
English 1510-20 and Speech 2311.

Health and Physical Education (11 hours)
School Health 3000 School Health 3210 Physical education electives (4).

Humanities (16 hours)
English—any 4 hours from literature Anthropology or Sociology 3300 Philosophy or religious studies elective (4) Art or music elective (4)

Mathematics (4 hours)

Natural Science (20 hours)
Chemistry or Physics sequence (4, 4, 4) Biology 1220 or Zoology 2920-30.

Psychology (4 hours)
Psychology 2500.

Sociology (15 hours)
Economics 2110 Geography 2110 or Political Science 2510-20 Sociology 1510.
teaching: Ed. C & I 4710*, 4720*, Ed. Psych. 2430 or 3810; and a senior elective in the College of Education.  

TEACHING AREAS AND ELECTIVES …… (Hours will vary according to program and endorsements.)

*Requires admission to Teacher Education Program.

A. Concentration in Educable Mentally Retarded (Elementary)

a. Special Education and Rehabilitation 3333, 3520, 4110-20-30, 4350, 4810, 4811, 4922, and 9 quarter hours Special Education and Rehabilitation electives.

b. Education 3260, 3280, Education Reading elective, Education Arithmetic elective, Education elective.

c. Music Education elective, Art Education elective, Physical Education or Health elective.

d. Educational Psychology 2430 or Psychology 3550, Educational Psychology Diagnostic Measurement elective.

e. 12 quarter hours from the following: Psychology 2530, 3210, 3220, Education 4860, Educational Psychology 4800, 3730, and Educational Media.

f. 9 quarter hours of general electives.  

TOTAL REQUIRED …………… 191 hours

B. Concentration in Educable Mentally Retarded (Secondary)

a. Special Education and Rehabilitation 3333, 4110-20-30, 4350, 4440, 4811, 9 quarter hours of Special Education and Rehabilitation electives, Special Education and Rehabilitation (Rehabilitation) elective, Educational Psychology 3810, 6 quarter hours of Education Reading electives, Educational Diagnostic Measurement electives.

b. Education 4410, Education Teaching Methods;

c. 9 quarter hours from following: Educational Psychology 2430, 4800, Psychology 2530, 3210, 3220, Education 4860.  

TOTAL MINIMUM REQUIRED …………… 191 hours

C. Concentration in Multiple Disabilities

GENERAL EDUCATION ……………... 50-81 hours

Communications (8 hours)

English 1510-20 or 3-4 hours in speech.

Health and Physical Education (9 hours)

Activities courses in physical education plus School Health 3510.

Humanities (15-16 hours)

Any literature from English, plus 12 hours of electives from anthropology, art, literature, Library and Information Science 3520-20-30, foreign language beyond introductory level, upper division history, music, philosophy, or religious studies. (NOTE: At least three fields must be represented.)

Mathematics (4 hours).

Natural Sciences (20 hours)

Any combination from the biological and physical sciences with 12 hours from one area (biological or physical) and 8 hours from the other.

Psychology (4 hours)

Social Studies (11-12 hours)

History 1510-20 or 2510-20 plus a minimum of 11-12 hours from three of the following: anthropology, economics, geography, political science, sociology.

CORE PROFESSIONAL EDUCATION ……… 9 hours

Ed. C & I 3101*, 3302, 3303*.

SPECIALIZED PROFESSIONAL EDUCATION ……… 24 hours

Appropriate methods courses (a) and student teaching: Ed. C & I 4710*, 4720*; Ed. Psych. 2430 or 3810; and a senior elective in the College of Education.

TEACHING AREAS AND ELECTIVES …… (Hours will vary according to program and endorsements.)

*Requires admission to Teacher Education Program.

D. Concentration in Emotionally Disturbed (Secondary)

a. Special Education and Rehabilitation 3333, 4130, 4610, 4620, 4630, 4640, Special Education and Rehabilitation electives 9 quarter hours.

b. Education Reading elective, Diagnostic Measurement, Educational Psychology 3810 and Educational Psychology 2430 or Psychology 3550.

c. 12 hours from the following: Psychology 2530, 3210, 3220, 4530, or Educational Psychology 4130 or Psychology 3650 or Educational Psychology 4760, 4800, 3730.

d. Requirements for a minor in a subject area must be met (minimum of 24 hours).

e. Education (C & I) 4720* and Special Education and Rehabilitation 4924 and one methods course in minor field.

TOTAL MINIMUM REQUIRED: Total hours required for endorsement in the various special education programs appear on curriculum sheets available from the faculty adviser.

E. Concentration in Emotionally Disturbed (Elementary)

GENERAL EDUCATION …………… 91 hours

Communications (12 hours)

English 1510 and 1520, Speech 1211 or 1221 or 2311.

Health and Physical Education (14 hours)

School Health 3610; Physical Education 3450; P.E. and health electives (must include a minimum of 3 hours in each area).

Humanities (12 hours)

Literature (8 hours): Elective chosen from philosophy, religious studies, foreign language above freshman level, or course from Art 1815 series, or from Music 1210 series.

Mathematics (9 hours)

Mathematics 2110-20-30.

Natural Science (20 hours)

History and physical science: Botany 1110-20-30 or Biology 1210-20-30.  

8-12 hours physical science: Physics 1410-20-30 or Geology 1510-20-30 (or Astronomy 2110-20-30) or Chemistry 1110-20-30.

Social Studies (20 hours)

History (4 hours) chosen from 1510-20, 1610, 1950, 2510-20 (or appropriate alternative); Electives (15-16 hours) from three of the following: anthropology, economics, geography, political science, human services, or sociology.

Psychology (4 hours)

Psychology 2500.

CORE PROFESSIONAL COURSES ……… 9 hours

Ed. C & I 3101*, 3302, 3303*.

SPECIALIZED PROFESSIONAL EDUCATION ……… 105 hours


d. Special Ed. and Rehab. 3333, 4610, 4620, 4630, 4640 (18 hrs).


f. Student Teaching (30 hours)


TOTAL HOURS FOR GRADUATION ……… 205 hours

*Requires admission to Teacher Education Program.

Recommended electives.
### F. Concentration in the Hearing Impaired

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Specialization in Early Childhood Development</td>
<td>GE 3310</td>
<td>8-15 hours</td>
<td>General Education</td>
</tr>
<tr>
<td>b. Specialization in Elementary Education</td>
<td>EDUC 3310</td>
<td>84 hours</td>
<td>General Education</td>
</tr>
<tr>
<td>c. Specialization in Secondary Education</td>
<td>EDUC 3310</td>
<td>82-83 hours</td>
<td>General Education</td>
</tr>
<tr>
<td>d. Specialization in Multihandicapped</td>
<td>EDUC 3310</td>
<td>194 hours</td>
<td>General Education</td>
</tr>
<tr>
<td>e. Specialization in Early Childhood Development</td>
<td>EDUC 3310</td>
<td>300 hours</td>
<td>Core Professional Courses</td>
</tr>
<tr>
<td>f. Specialization in Elementary Education</td>
<td>EDUC 3310</td>
<td>300 hours</td>
<td>Specialized Professional Education</td>
</tr>
</tbody>
</table>
I. Concentration in Partially Seeing

a. Completion of requirements of Elementary (K-9) or Secondary Education Curriculum;

b. Special Education and Rehabilitation 3333, 4160, 4850, 4923;

c. Eight quarter hours selected from the following: Special Education and Rehabilitation 3520, 4110, 4120, 4150, 4250, 4840;

d. Office Administration 2110 (for those lacking high school credits in typewriting).

TOTAL MINIMUM REQUIRED: Total hours required for endorsement in the above Special Education programs appear on curriculum sheets available from the faculty advisers.

VI. Vocational-Technical Education

A. Business Education

See curricula for Secondary Education (7-12) p. 96 for General Education and Professional Education requirements.

63 quarter hours in business and economics to meet five business endorsement areas approved by the department adviser. A statement of recommendations and alternative programs may be obtained from the chairman of Business Education.

B. Distributive Education

GENERAL EDUCATION ............. 85 hours

Communications (12 hours) English 1510-20 and speech elective.

Health and Physical Education (9 hours) School Health 3510 and health and P.E. electives.

Mathematics (8 hours) Mathematics 1540 and 1550.

Humanities (16 hours) Literature elective (4 plus 12 hours humanity electives.

Natural Science (12 hours) Biological or physical science sequence.

Psychology (7-8 hours) Psychology 2500; Psychology 2520 or Educ. Psych. 3110.

Social Studies (20 hours) History 1510-20 or 2510-20; Economics 2110-20, plus elective.

PROFESSIONAL EDUCATION .......... 42 hours


SPECIALIZED COURSES ............. 45 hours

Business Adm. 1110; Office Adm. 4310 or 4320; Accounting 2110; Marketing 3110-20, 4140, 4310, 4150; Finance 3120; Industrial Management 3070; Textile elective; Business Law 4110; Distributive Educ. 4140; Advertising 3000.

ELECTIVES .................. 12 hours

TOTAL MINIMUM REQUIRED ........ 183 hours

C. Industrial Education

Option 1. Concentration in Trades and Industries

GENERAL EDUCATION ............. 66 hours

Communications (11 hours)

English (8 hours); speech elective (3 hrs).

Health and Physical Education (9 hours)

Health and P.E. electives. (Both areas must be represented.)

Humanities (15 hours)

Literature elective (4 hrs). Two additional areas taken from the following: philosophy, anthropology, art, art education, literature, foreign language, music or religious studies.

Mathematics (3 hours) 

Natural Science (12 hours)

Psychology (4 hours) Psychology 2500.

Social Studies (12 hours)

Two areas from the following must be represented: history, anthropology, economics, geography, political science, sociology.

PROFESSIONAL EDUCATION .......... 39 hours

Education C &I 3010, 3020, 3030; Ed. Psych. 3810; Ind. Educ. 3110 or 3130, 3110, 4110, 4120, 4130, 4410 and/or 4420.

TEACHING AREAS .................... 45 hours

Ind. Educ. 1620, 1642, 1661, 2621, 3010, 3020, 3030, 3621, 4520 or Econ. 3410.

ELECTIVES .................. 36 hours

TOTAL MINIMUM REQUIRED ........ 186 hours

D. Agricultural Education

See page 51 for this program.

E. Home Economics Education

See page 153 for this program.

Departments of Instruction

Numbers in parentheses following the course titles indicate quarter hours credit offered.

Art and Music Education

Professors:


Associate Professors:


Assistant Professors:


Art Education (141)

1511 Field Experiences in Teaching Art (1) Field experiences in which students perform tasks related to teaching and to teacher roles. Satisfactory-No Credit. May be repeated for credit.

2100 Introduction to Art Education in the Schools (3) Art Teacher 1 through 12; growth and development, objectives, motivation, evaluation. Experiences with school media. 1 hr and 2 labs.

2110 Drawing, Painting, and Design Activities in Elementary School (3) Prereq. 2100. 1 hr and 2 labs.

2120 Drawing, Painting, and Design Activities in Junior and Senior High School (3) Prereq. 2100. 1 hr and 2 labs.

3110 Crafts in the Elementary School (3) Prereq: 2100. 1 hr and 2 labs.

3210 Art in Secondary School Program (3) Program planning; materials and equipment; relation to other school experiences. Classroom observation. Prereq: nine quarter hours in art education. 1 hr and 2 labs.

3511 Field Experiences in Teaching Art (1) Field experiences in which students perform tasks related to teaching and to teacher roles. Satisfactory-No Credit. May be repeated for credit.

3920 Clay in School Program (3) Exploring methods of hand-built forms, glazing and firing procedures. Prereq. 2100. 1 hr and 2 labs.

3930 Textiles in School Program (3) Exploration of processes of weaving, stitching, batik, and silk screen. Prereq. 2100. 1 hr and 2 labs.

4120 Designing of Teaching Aids for Art in School Program (3) Design and preparation of charts, exhibitions, slides, films and other teaching aids for art grades one through twelve. Prereq. 2100 or consent of instructor. 1 hr and 2 labs.

4130 Three-Dimensional Design in School Program (3) Exploration of wood, wire, metal, plastics, and other sculptural materials. Prereq. 2100 or consent of instructor. 1 hr and 2 labs.

4150 Lettering, Posters, and Displays in the School Program (3) Design and layout; techniques and procedures. Prereq. 2100 or consent of instructor. 1 hr and 2 labs.

4160 Appreciation of the Arts in School Program (3) Prereq. 2100 or consent of instructor. 1 hr and 2 labs.

4350-60-70 Problems in Art Teaching (3, 3, 3) Prereq: Consent of instructor.

4410 The Administration and Organization of Recreational Arts and Crafts Programs (3) Purposes of art activity in recreation; scope of activities, organizational procedures, resources, and coordination required in community arts and crafts programs.

GRADUATE 5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5210 Organization, Administration, and Supervision of Art in the School Program (3)

5310 Art of Education (3)

5320 Program Development in Art Education (3)

5850-60-70 Problems in Art Education (3, 3, 3)

Music Education (707)

The curriculum in music education provide for five areas of concentrations: vocal music (voice principal); instrumental music (piano or organ principal); elementary music education (voice principal); elementary music education (piano or organ principal); and
instrumental music.

1010-20 Choral Laboratory (1, 1) Choral conductung: methods and materials, required of all music education majors. Prereq: approval of instructor.

1511 Field Experience in Teaching Music (1) Field experiences in which students perform tasks related to teaching and to teacher roles. Satisfactory-No Credit. May be repeated for credit.

2100 Basic Experiences in Classroom Music (3) Vocal, instrumental, rhythm, listening, music reading, and creative activities. For music education majors. Prereq: approval of instructor, one year of music theory. 2 hrs and 1 lab.

2110 Experiences in Classroom Music (3) Vocal, instrumental, rhythm, listening, music reading, and creative activities. For music education majors. Prereq: approval of instructor, one year of music theory. 2 hrs and 1 lab.

2411-12-13 Methods, Materials, and Techniques of String Class Instruction (2, 2, 2) Structure, use, techniques of playing, care, and repair of principal instruments in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practice, use of current instructional materials. 2 hours per week.

2421-22-23 Methods, Materials, and Techniques of Woodwind Class Instruction (2, 2, 2) Structure, use, techniques of playing, care and repair of principal instruments in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practice, use of current instructional materials. 2 hours per week.

2431-32 Methods, Materials, and Techniques of Brass Class Instruction (2, 2) Structure, use, techniques of playing, care and repair of principal instruments in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practice, use of current instructional materials. 2 hours per week.

2433 Methods, Materials, and Techniques of Percussion Class Instruction (2) Structure, use, techniques of playing, care and repair of principal instruments in school instrumental organizations. Emphasis on techniques necessary for basic understanding and effective teaching of the instruments. Practice, use of current instructional materials. 2 hours per week.

3110 Teaching Music in the Primary Grades (3) Singing, rhythm, instrumental, listening, creative and music reading activities; evaluation; materials appropriate for Grades K-3. For elementary education majors only. Prereq: 2100 or 2110, Educational Psychology 2430, upper-division standing.

3120 Teaching Music in the Intermediate and Upper Grades (3) Singing, rhythm, instrumental, listening, creative and music reading activities; evaluation; materials appropriate for Grades 4-6. Primarily for elementary education majors. Prereq: Music 2100 or 2110, Educational Psychology 2430 and upper-division standing.

3130 Teaching Music in the Elementary School (3) Singing, rhythm, instrument, listening, creative and music reading activities; evaluation; materials appropriate for Grades K-6. For music education majors only. Prereq: 2110, Educational Psychology 2430 and upper-division standing.

3141 Guiding Musical Learning Experiences in the Primary Years (3) Course designed primarily for music education student majoring in elementary music education in which emphasis is given to musical skills and learnings appropriate for children, ages five through eight. Prereq: 2110 and Educational Psychology 2430.

3142 Guiding Musical Learning Experiences in the Intermediate Years (3) Course designed primarily for music education student majoring in elementary music education in which emphasis is given to musical skills and learnings appropriate for children, ages nine through eleven. Prereq: 3141.
Undergraduate programs in the Department of Curriculum and Instruction provide the general professional courses for the preservice education of teachers in elementary and secondary schools.

1410 Efficient Reading and Study Skills (1) Improvement of reading and study skills. Satisfactory-No Credit.

2010-20-30 Field Study in Education (3, 3, 3) Problems of teachers in active service in the fields of methods of teaching, curriculum materials, school-community relationships, and school organizations.

3010 History and Philosophy of Education (3) Role of philosophy in education; realism, Neo-Thomism, pragmatism, existentialism, and other contemporary movements; major ideas, historical roots, and modern applications. Prereq: admission to Teacher Education. Undergraduate credit only.

3200 Principles and Organization of Education (3) Relation to current educational problems and practices; organizational patterns; financing of public education; professional organization of teaching. Undergraduate credit only.

3300 Social Foundations and Curriculum (3) Culture and society and their influences on curriculum; principles, problems, and procedures of subject matter selection, sequence, grade placement, and time allotment; curriculum issues; State curriculum policies and practices. Prereq: admission to Teacher Education. Undergraduate credit only.


3110 Curriculum II (3) Prereq: Ed. Psych. 1000, Psychology 2110, Ed. Psych. 2510, Ed. C & I 3100 or consent of instructor.

3510 Analysis of Teaching (3) Use of interaction analysis to describe and classify verbal behavior changes between teacher and student; related nonverbal behavior techniques. Prereq: consent of instructor.

3800 Microteaching (3) Emphasis upon the development of instructional skills. Students teach a selected lesson to a group of students in elementary or secondary schools. Lessons are videotaped, and the students and instructor evaluate the teaching behaviors recorded on the tape. Prereq: consent of instructor.

3260 Teaching Language Arts in the Elementary School (3) Methods and materials in teaching writing, spelling, and language. Undergraduate credit only. Should be taken prior or concurrently with C&I 3280. Prereq: Educational Psychology 2430 or equivalent, admission to Teacher Education.

3270 Teaching Social Studies in the Elementary School (3) Methods and materials. Undergraduate credit only. Prereq: Educational Psychology 2430 or equivalent, admission to Teacher Education.

3280 Teaching Developmental Reading in the Elementary School (3) Methods and materials. Undergraduate credit only. Prereq: Educational Psychology 2430 or equivalent, admission to Teacher Education.

3281 Teaching Developmental Reading in the Elementary School (3) Second course in sequence designed to enable preservice teachers to develop skills and understandings necessary for operation of subsequent developmental reading program in the elementary school. Prereq: Ed. Psych. 2430 or equivalent and admission to Teacher Education.

3310 History of Education (3)

3320 History of Education in the United States (3)

3350 Teaching Arithmetic in the Elementary School (5) Goals, methods, materials, and evaluation. Undergraduate credit only. Prereq: Educational Psychology 2430 or equivalent. Mathematics 2110-20-30, admission to Teacher Education.

3510 Books and Related Materials for Children (3) (Same as Library and Information Science 3312.)

3511-12-13 Field Experiences in Teaching: Elementary (1, 1, 1) Field experiences in which students perform tasks related to teaching and to teacher roles. May be taken separately or concurrently by consent of instructor. Must be taken concurrently. Prereq: 3511—Educ. Psych. 2430 or equivalent. 3512—13—admission to Teacher Education. Satisfactory-No Credit.

3520 Books and Related Materials for Young People (3) (Same as Library and Information Science 3320.)

3521-22-23 Field Experiences in Teaching: Secondary (1, 1, 1) Field experiences in which students perform tasks related to teaching and to teacher roles. May be taken separately or concurrently by consent of instructor. Satisfactory-No Credit.

3531-32-33 Field Experiences in Teaching: Social Foundations (1, 1, 1) For description, see 3521-22-23. Satisfactory-No Credit.

3651 Teaching of Speech and Drama, Grades 7-12 (3) For description, see 3653.

3652 Teaching of Modern Foreign Languages: Oral Communication (3) Prereq: admission to Teacher Education. Oral communication, pronunciation, and self-assessment. For description see Educ. C & I 3653. This course and Educ. C & I 3653 are required for certification in foreign languages. Must be taken concurrently with 3653.

3653 Teaching of Modern Foreign Languages: Reading, Literature, Grammar and Composition, Grades 7-12 (3) For description see Educ. C & I 3653. This course and Educ. C & I 3653 are required for certification in foreign languages. Must be taken concurrently with 3652.

3654 The Teaching of Science, Grades 7-12 (3) For description, see 3653.

3656 The Teaching of Latin, Grades 7-12 (3) For description, see 3653. (Same as Classics 4210.)

3657 Language, Composition and Speaking, Grades 7-12 (3) For description, see 3653. Both this course and Educ. C & I 3658 are required for certification in English.

3658 Teaching Reading, Literature, and Listening, Grades 7-12 (3) For description, see 3653. Both this course and Educ. C & I 3657 are required for certification in English.

3720 Teaching Science in the Elementary School (3) Methods and materials, undergraduate credit only. Prereq: Ed Psych 2430 or equivalent, admission to Teacher Education.

3751 Teaching of Mathematics: Numerical and Algebraic Concepts, Grades 7-12 (3) For description, see Educ. C & I 3653. Both this course and 3735 are required for certification in mathematics.

3752 Teaching of Mathematics: Geometry and Analysis, Grades 7-12 (3) For description, see Educ. C & I 3653. Both this course and 3752 are required for certification in mathematics.

4010 International Education: Europe and the Americas (3, 3) Historical, philosophical and sociological foundations; special reference to England, USSR, France, and Germany.

4110 Philosophies of Education in Cultural Perspective (3) Education in relation to liberal, conservative, reactionary, and radical currents of thought in American culture.

4150 School Library Administration (3) (Same as Library and Information Science 4150.)

4210 Curriculum in Elementary School Social Studies (3) Survey of the 254 curriculum approaches and trends in elementary school social studies. Prereq: teaching experience or student teaching.

4215 Teaching Elementary School Science (3) Methods and materials used in teaching of science in elementary school. Developmental and diagnostic/curriculum programs. Not open to students with recent course or background in teaching of elementary school science.

4216 Teaching Elementary School Mathematics (3) Methods and materials used in teaching of mathematics in elementary school. Developmental and diagnostic/curriculum programs. Not open to students with recent course or background in teaching of elementary school mathematics.

4217 Teaching Elementary School Language Arts (3) Methods and materials used in teaching of elementary school language arts. Development of functional relationships with other curriculum areas, diagnostic procedures, and corrective work. Not open to students with recent course or background in teaching of elementary school language arts.

4250 Introducing the Activities Program (3) Prereq: Educational Psychology 2430, six quarter hours of methods of teaching in the elementary school, and junior or senior standing.

4260 Philosophy of Education: Introductory Studies (3) Truth, knowledge, and valuation in relation to work of the school. Prereq: 3010, Educational Psychology 2430 or 3810, or equivalents.

4261 Educational Classics (3) Discussion of selected writings on education from Plato to Dewey.

4280 Diagnosis and Correction of Classroom Reading Problems (3) Prereq: 3280 or equivalent.

4300 Developmental Reading in the Secondary School (3)

4301 Teaching Developmental Reading (3) Methods and materials used in teaching of reading in the elementary school. Course includes development of functional relationships with other curriculum areas, diagnostic procedures, and remedial work. Not open to students with recent course work or background in the teaching of reading.

4303 Language Development of Children: Birth-Preschoolness (3) In-depth view of language development during years of birth through preschoolness; application of process of language development to instructional programs for early and middle childhood.

4340 The Junior High School and Middle School (3) To identify and analyze distinguishing characteristics of the Junior High and Middle School curriculums.

4550-60-70 Problems in Teaching English (3, 3, 3)

4531-61-71 Problems in Teaching Mathematics (3, 3, 3)

4532-62-72 Problems in Teaching Social Studies (3, 3, 3)

4533-63-73 Problems in Teaching Science (3, 3, 3)

4534-64-74 Problems in Teaching Language Arts (3, 3, 3)

4535-65-75 Problems in General Curriculum (3, 3, 3)

4536-66-76 Problems in Instructional Materials (3, 3, 3)

4537-67-77 Problems in Teaching Foreign Languages (3, 3, 3)

4539-69-79 Problems in Teaching Conservation (3, 3, 3)
4380-90-4400 Problems in the Improvement of Instruction (2, 2, 2) Registration in special conferences, workshops, or inservice programs.

4381 Problems in Early Childhood Education (3) May be repeated for a total of 9 hrs. Six hrs can be taken concurrently.

4410 Educational Sociology (3) (Same as Sociology 4410.)

4430 Practicum in Teaching in the Elementary School (3) Practicum experience in elementary school classroom teaching designed for students seeking elementary certification who have obtained degrees in areas other than elementary education, and who have obtained degrees and certification in areas other than this. Application must be filed with student teaching office by at least one quarter prior to registration for practicum. Prereq: 3260-70-80, 3350, 3720 or equivalents and admission to teacher education.

4450 Teaching in Kindergarten: Overview (3) Relationship of kindergarten to total elementary program, goals, historical settings and current developments.

4451 Teaching in Kindergarten: Program Development (3) Curriculum planning and organization; classroom management. Prereq: Education C&I 4450 or permission of instructor.

4452 Elementary School Teaching: Minicourse (1-2) Mini-course focusing on various aspects of teaching in elementary school. Topics vary. Prereq: Student teaching. May be repeated. S/N.C.

4530 Home and School Relations (3) Study of need and techniques which can develop closer relationship between the home and school at both elementary and secondary levels. Prereq: Senior standing.

4630 Current Educational Problems (3)

4654 Programs, Methods and Materials in Environmental and Science Education (3) Instructional materials, teaching methods, curricular programs, and issues in environmental and science education.

4710 Student Teaching, Grades 7-12 (8) Application for student teaching must be filed not later than final quarter of junior year. Students should hold themselves available to do this work in off-campus center. Must be taken with 4720. Prereq: 3010-20-30, Educational Psychology 3810, appropriate special methods course(s), minimum grade point average of 2.0. Undergraduate credit only. Satisfactory-No credit.

4720 Student Teaching, Grades 7-12 (8) Cooperative, training with other students and teachers: analyses of teaching practices; evaluation of teaching competencies as a result of student teaching. Must be taken with 4710. Undergraduate credit only. Satisfactory-No credit.

4750 Audivisual Methods and Techniques (3) Selection, operation, and use of equipment and materials. (Same as Library and Information Science 4750 and Vocational-Technical Education 4750.)

4810 Student Teaching in the Elementary School (9) Application for student teaching must be filed not later than final quarter of junior year. Students should hold themselves available to do this work in off-campus centers. Must be taken with 4820. Prereq: 3010-20-30, 3260-70-80, 3350, 3720; Educational Psychology 2430, Library Services 3810, minimum grade point average of 2.0. Undergraduate credit only. Satisfactory-No Credit.

4820 Student Teaching in the Elementary School (6) Must be taken with 4810. Undergraduate credit only. Satisfactory-No Credit.

4840 Introduction to Data Processing in Education (3) Analysis of current activities in field of educational data processing. Emphasis on curricular, administrative, and research opportunities in education, using modern electronic data processing methods and machines.

4850 Student Teaching in Early Elementary School (K-3) Application filed no later than second quarter of junior year with placement one quarter prior to quarter of graduation. Prereq: Educ. C&I 3260, 3270 or 3720, 3280, 3350, 4450; CFS 3120, 3210. S/N.C.

4851 Student Teaching in Elementary School (K-3) Application filed no later than second quarter of junior year with placement at least one quarter prior to quarter of graduation. Prereq: Educ. C&I 3260, 3270 or 3720, 3280, 3350, 4450; CFS 3120, 3210.

4860 Programmed Learning (3) Theories of learning as related to technology of programmed instruction, techniques and applications of programming. 2 lectures and 1 lab. Prereq: Psychology 3210, Educational Psychology 3720, or permission of instructor. (Same as Psychology 4860.)

GRADUATE

Graduate instruction in the Department of Curriculum and Instruction provides opportunities to improve the effectiveness of educational service in a number of areas.

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5040 Seminar in Elementary School Language Arts (3)

5100 History of European Education (3)

5110 History of Education (3)

5120 Principles of Education (3)

5140 Comparative Philosophies of Education (3)

5141 Pragmatism in Education (3)

5142 Existentialism in Education (3)

5143 Supervised Readings in Philosophy of Education (3)

5150-60-70 Seminar (1, 1, 1)

5180-90-5200 Educational Specialist Research and Thesis (3, 3, 3)

5210 Seminar in International Education: Asia and Africa (3)

5211 Instructional Strategies in Elementary School Social Studies (3)

5220 Supervised Readings in International Education (3)

5230 Diagnosis and Remediation of Arithmetic Difficulties (3)

5240 Creative Thinking and Expression in Elementary School (3)

5270 Seminar in Comparative Education: The Americas (3)

5279 Secondary School Instruction (3)

5280 Teaching Language Arts in the Elementary School (3)

5281 Teaching Social Studies in the Elementary School (3)

5282 Teaching Science in the Elementary School (3)

5283 Programs and Materials in Teaching Elementary Science (3)

5284 Seminar in Teaching Elementary Science (2)

5285 The Teaching of Mathematics in the Elementary School (3)

5291 Programs and Materials in Elementary School Language Arts (3)

5292 Seminar in Research and Theory in Teaching Mathematics in the Elementary School (3)

5302 Psychology of Reading (3)

5304 Programs and Materials for Reading Instruction (3)

5305 Trends and Issues in Teaching Reading (3)

5306 Teaching Reading to the Linguistically Different Learner (3)

5350 Curriculum Development and Evaluation (3)

5360-70 Curriculum Development in the Local School (3, 3)

5365 Mathematics Laboratories in Elementary School (K-9) (3)

5380 Diagnosis of Remedial Reading Problems (3)

5381 Remediation of Remedial Reading Problems (3)

5382 Developmental Reading Practice (3)

5383 Remedial Reading Practice (3)

5390 Organization and Administration of Reading Programs (3)

5410 The High School Curriculum (3)

5530 Curriculum Laboratory for High Schools (3)

5580 Curriculum Planning and Development (3)

5610 Educational Statistics (3)

5620 Problems in Direction and Supervision of Student Teaching (3)

5630 Practicum in the Individualization of Instruction (3)

5640 Newer Trends in Elementary Education (3)

5650-60 Curriculum Laboratory for Elementary Schools (3, 3)

5670 Curriculum Laboratory for Early Childhood Education (3)

5691 Production and Use of Audio-Visual Materials (3)

5710 Techniques of Research in Education (3)

5720 Classroom Observation and Analysis (3)

5800 Seminar in Cooperative Curriculum Research (3)

5820 Seminar in the Teaching of Mathematics (3)

5825 Teaching Mathematics in the Middle and Junior High School (3)

5830 Seminar in Mathematics Education (3)

5835 Teaching Mathematics in the Senior High School and Community/Junior College (3)

5841 Trends and Issues in Early Childhood Education (3)

5842 Problems in Education: Early Childhood (3)

5843 Seminar in Early Childhood Education (3)

5844 Mathematics in Early Childhood Education (3)

5845 Social Studies and Science in Early Childhood Education (3)

5846 Language Arts in Early Childhood Education (3)

5850-60-70 Problems in Education: English (3, 3, 3)

5851-61-71 Problems in Education: Mathematics (3, 3, 3)

5852-62-72 Problems in Education: Social Studies (3, 3, 3)

5853-63-73 Problems in Education: Science (3, 3, 3)

5854-64-74 Problems in Education: Language Arts (3, 3, 3)

5855-65-75 Problems in Education: General Curriculum (3, 3, 3)
5856 Problems in Education: Instructional Materials (3)
5866-76 Problems in Education: Instructional Materials (3, 3, 3)
5857-67-77 Problems in Education: Foreign Languages (3, 3, 3)
5859-69-79 Problems in Education: Conservation (3, 3, 3)
5900 Seminar in the Teaching of English in the Secondary School (3)
5901 Linguistics and the Teacher of English (3)
5902 Teaching Composition in the High School (3)
5903 Teaching Fiction in the Secondary School (3)
5904 Teaching the Mass Media in the English Classroom (3)
5905 Teaching English in the Community/Junior College (3)
5906 Teaching Poetry in Grades 7-12 (3)
5907 Teaching Drama in Grades 7-12 (3)
5908 Developing Speaking and Listening Skills in Grades 7-12 (3)
5909 Instructional Theory and Design (3)
5910-20-30 Problems in Lieu of Thesis (3, 3, 3)
5911 Directing the Forensic Program (4)
5912 Play Production in Secondary Schools (4)
5950 Reflective Thinking: The Method of Education (3)
5960 Teaching Natural Science (3)
5961 Seminar in Science and Environmental Education (3)
5970 Teaching the Social Studies (3)
5980 Projects, Programs, and Materials in Social Studies (3)
6000 Doctoral Research and Dissertation
6010 Studies in English Education (3)
6020 Seminar in Teaching the Social Studies (3)
6030 Research and Theory in Teaching Reading (3)
6031 Seminar in Reading and Language Arts (3)
6040 Seminar in Curriculum and Instruction (1, 1, 1)
6060 Philosophy of Methodology in the Elementary School (3)
6070 Advanced Seminar in International Education (3)
6080 Advanced Seminar in Philosophy of Education (3)
6081 Phenomenology and Education (3)
6082 Philosophical Analysis and Education (3)
6150 Education as Social Policy (3)
6210 Seminar in Elementary School Social Studies Research (3)
6230 Programs for Curriculum Improvement (3)
6250 Seminar in History of Education (3)
6282 Advanced Studies in Elementary School Science (3)
6350 The Professional Education of Teachers (3)
6400 The Dynamics of Educational Change (3)
6500 Advanced Studies in Early Childhood Education (3)
6510 Advanced Studies in Elementary School Language Arts (3)
6710 Advanced Educational Statistics (3)
6720 Interpretation of Data (3)
6730 Theory and Evaluation in Curriculum Planning (3)
6731 Studies in Curriculum Theory and the Structure of Knowledge (3)
6740 Curriculum Workshops in Instructional Improvement (3)
6750-65-70 Problems in Curriculum and Instruction (3, 3, 3)
6830 Studies in Mathematics Education (3)
6850 Principles of Educational Leadership (3)

**Educational Administration and Supervision (292)**

**Professors:**

**Associate Professors:**

**Assistant Professor:**
P.M. Husen, Ed.D. Stanford.

\*U.T. at Nashville.

**GRADUATE**

**5000 Thesis**

**5002 Non-Thesis Graduation Completion (3)**

**5100 Internship in Educational Administration (3)**

5130 Introduction to Educational Administration (3)
5180-90-5200 Educational Specialist Research and Thesis (3, 3, 3)
5220 Philosophy and Theory in Educational Administration (3)
5230 Seminar in the Behavioral Sciences for Educational Administration (3)
5290 The Politics of Education (3)
5310 School Administration in a Multi-Ethnic Society (3)
5420 District Level Administration (3)
5430 Building Level Administration (3)
5440 Introduction to Law, Finance, and Business Management at the Building Level (3)
5450 Organization of the School Program (3)
5470 Introduction to School Facility Planning (3)
5480 Introduction to Supervision and Personnel Administration (3)
5490 Administration of Community Education (3)
5530 Introduction to Educational Planning (3)
5560 Analysis and Interpretation of Research for Educational Administrators (3)
5580 Seminar in Communication Skills for Educational Administrators (3)
5711-21-31 Problems in Educational Administration and Supervision: School Operation (3, 3, 3)
5712-22-32 Problems in Educational Administration and Supervision: Higher Education (3, 3, 3)
5713-23-33 Problems in Educational Administration and Supervision: State School Administration (3, 3, 3)
5714-24-34 Problems in Educational Administration and Supervision: Preparation Programs (3, 3, 3)
5715-25-35 Problems in Educational Administration and Supervision: Community Education (3, 3, 3)
5720 Seminar in Urban School Administration (3)
5730 School Business Management (3)
5740 School Law (3)
5751-61-71 Problems in Educational Administration and Supervision: Theory (3, 3, 3)
5752-62-72 Problems in Educational Administration and Supervision: Finance (3, 3, 3)
5753-63-73 Problems in Educational Administration and Supervision: Transportation (3, 3, 3)
5754-64-74 Problems in Educational Administration and Supervision: Business Management (3, 3, 3)
5755-65-75 Problems in Educational Administration and Supervision: Personnel (3, 3, 3)
5756-66-76 Problems in Educational Administration and Supervision: School Plant (3, 3, 3)
5757-67-77 Problems in Educational Administration and Supervision: Organization and Structure (3, 3, 3)
5758-68-78 Problems in Educational Administration and Supervision: School Law (3, 3, 3)
5759-69-79 Problems in Educational Administration and Supervision: Supervision (3, 3, 3)
5770 Maintenance of School Plants (3)
5780 Supervision (3)
5790 School Board-Superintendent Relationships (3)
5810 Survey Research Methods (3)
Educational Psychology and Guidance (311)


Memphis Center.

1000 Career Development: Exploration and Self-Concept (3) Exploration of occupations based upon analysis of self and occupational requirements; development of commitment to teaching and understanding of teaching-learning problems in the classroom. Prereq: consent of instructor. Satisfactory-No Credit.

2000 Field Experience (1) Field experiences in working with children and youth and their teachers. Students will perform various teaching tasks and be given opportunity to act in teaching roles. May be repeated for a total of six credit hours.

2430 Child Study (3) Child learning and development: study of individual children, ages 5-12. Prereq: Psychology 2500 or equivalent. Coreq: either Educational Psychology or Psychology 2000 or a 2 hour/week field experience.

2510 Child and Adolescent Study (4) Encompasses study of concepts of behavior, intervention techniques, principles of child and adolescent development, special categories of children, child in relation to family and community, and methods of studying children. Prereq: Educational Psychology 1000 and Psychology 2110 or permission of instructor.

2520 Study of Self and Self-Concept (4) Study of (1) student understanding of how the self develops so that prospective teacher can better understand pupils and (2) student's increased understanding of himself. Prereq: Educational Psychology 1000, Educational Psychology 2110, and Educational Psychology 2510 or permission of instructor.

3000 Field Experience (1) Field experiences in working with children and youth and their teachers. Students will perform various teaching tasks and be given opportunity to act in teaching roles. May be repeated for a total of six credit hours.

3110 Classroom Behavior Management (4) Student will develop understanding of behavior management procedures and skill in utilizing behavior management procedures in shaping pupil classroom behaviors. Prereq: Psychology 2110.

3550 Child Psychology (4) (Same as Psychology 3550.)

3560 Individual Skills for Campus Leaders (3) Knowledge and skills for effectively managing leadership and administrative roles in campus organizations.

3730 Educational Psychology (3) Increasing effectiveness of learning. Prereq: Psychology 2110-20 or equivalent.

3810 Educational Psychology: Adolescence (3) Physical, emotional, intellectual, social career and ethical dimensions of adolescent development; major emphasis given to effective communication with adolescents within the educational setting. Prereq: Psychology 2500 or equivalent. Coreq: either Educational Psychology and Guidance 3000 or a 2 hour/week field experience.

4110 Psychology of Sex Role Development (3) Examination of the role of sex on behavior, development, socialization, and social role behavior. Coreq: factors of which contribute to sex role development with attention to changes in sex role definition in society and role of education in these changes. Aimed at the undergraduate or graduate student with minimal background in behavioral sciences.

4130 Mental Health (3)

4350-60-70 Problems in Educational Psychology and Guidance (3, 3, 3)

4440 General Evaluation Procedures for Public Schools (3) Prereq: 2430 or equivalent.

4551-52-53-54-55-56 Student Leadership Workshops (1, 1, 1, 1, 1) Series of small group and individualized experiences to develop knowledge and skills required of students in leadership roles. Sections are designed for resident assistants, student government leaders, student activities, and other student organizations. Prereq: Permission of instructor. Satisfactory-No Credit.

4640 Standardized Testing (3) Use and interpretation of standardized group instruments in assessment of intelligence, aptitude, achievement, vocational interests and personality adjustment.

4650 The Construction of Classroom Tests (3) Concerned with teacher-made classroom tests: instructional objectives, principles of test construction, item analysis, evaluating a test's reliability and validity, interpretation of test scores, relationship between testing and grading.

4780 Assertion Training - Theory and Application (3) Exploration of theoretical and experimental bases of interpersonal behavior which enables a person to be self Assertive.

4780 Advanced Child Study (3) Prereq: 2430 or 3810 or permission of instructor.

4800 Psychology of the disadvantaged Child (3) Significant behavioral differences and causes; appropriate intervention approaches.

4880 Differential Psychology (3) Nature and sources of individual differences in behavioral characteristics, and differences between racial, ethnic, socioeconomic, sex, and other groups.

4910 Diagnostic and Corrective Teaching (3)

GRADUATE

5900 Thesis

5902 Non-Thesis Graduation Completion (3)

5040 Guidance and Pupil Personnel Services in Education (3)

5050 Children and Adolescents (3)

5060 Group Approaches with Students (3)

5070 Seminar in Elementary School Guidance (3)

5099 Field Work in School Psychology (1-6)

5100 Developmental Psychology (3)

5110 Psychology of Women (3)

5111-12-13 Seminar in Current Issues in School Psychology, (1, 1, 1)

5140-50-60 Psychoeducational Assessment (3, 3, 3)

5149-59-69 Practicum in School Psychology I (2, 2, 2)

5180-90-5200 Educational Specialist Research and Thesis (3, 3, 3)

5210 Interpreting Published Articles: Statistics (3)

5220 Interpreting Published Articles: Research Design (3)

5319 Field Work in School Psychology: Level I (2)

5330 Advanced Classroom Behavior Modification (3)

5330 Theory and Research in Human Learning (3)

5331 Current Developments in Human Learning (3)

5340 Group Dynamics (3)

5350 Educational Applications of Cognitive Theories (3)
preparation programs are offered for teachers of health, physical education, dance, and/or recreation and for administrators of public health or recreation programs. For information on graduate programs leading to the Master of Science, the Master of Public Health, Educational Specialist, the Doctor of Education, or the Doctor of Philosophy degrees, see the Graduate School Catalog.

The School of Health, Physical Education, and Recreation also provides activities programs for all students in physical education and service courses in health and safety.

Health and Safety Education


Associate Professors: J.A. Ahmad, Ph.D. Oregon, M.D. Punjab (India); J.D. Gorski, Dr. P.H. UCLA, C.B. Hamilton, Dr. P.H. Oklahoma.

Assistant Professors: A.J. Pickett, M.S. Columbia; A.F. Thompson, Ph.D. Michigan.


Public Health (839)

1110 Principles in Personal Health (3) To develop ability to approach health scientifically and to develop justified confidence in judgments affecting personal health.

2040 Seminar in Human Sexuality (2) Problems and responsibilities of being male and female. Satisfactory-No Credit.

2050 Seminar in Drug Use and Abuse (2) Intensive look at problems related to use and abuse of drugs. Satisfactory-No Credit.

3000 Foundations of Health Science (3) In-depth study of content areas relating to personal health and contemporary health problems, i.e., mood modifying products, consumer health, international health, personal health practices, reciprocal relationships involving man, disease and environment. (Same as School Health 3000).

3210 First Aid and Emergency Care (4) Theory and practice of first aid and emergency care. Instruction in medical self-help. Course leads to Red Cross Certification in Advanced First Aid and Emergency Care. (Applicant must be at least 18 years of age for certification.) (Same as School Health 3210.)

3310 Communicable and Non-communicable Diseases (3) Modern concepts of diseases; etiology of common communicable and chronic disease problems including prevention and control. Prerequisite: One year of biological science and one course in bacteriology.

3320 Sanitation (3) History of sanitary awakening; disease-producing relationships and controls of water, sewage, refuse, milk, meat and other foods, air, insects, and soil; sanitation of homes, swimming pools, industrial plants, markets, restaurants, camps, and public bathing places. Healthful school living as affected by buildings and grounds, lighting, acoustics, thermal control, and safety provisions. Prerequisite: One year biological science, one course in microbiology, 2 hrs and 1 lab.

3330 Introduction to Public Health (3) Philosophy, organization, and functions of federal, state, and local, official and voluntary public health agencies. Includes periodic field trips.

4120 Community Health Problems—Alcoholism (3) Explores problems of alcoholism regarding overall health of community. Emphasis placed on factors making alcoholism a serious public health problem. Various types of educational programs to control the disease covered.

4130 Community Health Problems—Suicide (3) Explores problems of suicide regarding overall health of community.

4140 Community Health Problems—Death Education (3) Exploration of ramifications of death and dying as related to personal and community health.

4210 Urban and Industrial Health (3) Health problems created by a burgeoning population and the megalopolis; industrial health problems of concern to management, supervisor, and industrial worker, control of occupational diseases, poisons, accidents, and other conditions incidental to industry.

4220 Communications for Better Health (3) Selective study of communications in health enterprise. Consideration in logical progression the problems of transmitting current and new information to practitioners, communications among members of modern health teams, among health agencies, and use of mass media for transmitting health information.

4410 Consumer Health and Safety Education (3) Survey of major consumer health and safety problems; selecting, purchasing, and financing of safety and medical services.

4411 Instructor's Advanced First Aid and Emergency Care (3) Designed to teach First Aid. Satisfactory completion qualifies one for American National Red Cross Certification as an Advanced First Aid and Emergency Care Instructor. (A requirement for this certification is that an applicant must be at least 21 years of age.) Prerequisite: 3210 or valid Advanced First Aid and Emergency Care Certificate.

4420 Drug Abuse Education (3) Drug abuse problem and suspected causes; pharmacology of drugs and effects on society and methods of drug abuse education.

4700-10-20 Field Practice in Public Health (3, 3, 3) Field practice in public health under supervision of public health profession. Satisfactory-No Credit.

4730 Workshop in Public Health Education (3-6) For teachers, nurses, case workers, sanitarians, and other voluntary and public health agency personnel; emphasizes the problem solving approach through small group interaction, case method, and critical incident technique. May be repeated for credit.

4840-50 Health Problems in Public Health Education (1, 1) Individual identification and study of current problems in public health education. Extensive reading and literature required.

GRADUATE

5002 Non-Thesis Graduation Completion (3)

5010-20-30 Workshop in Public Health (3-6, 3-6, 3-6)

5070-80-90 Field Practice and Seminar in Public Health Education (5, 5, 5)

5110 Environmental Health (5)

5120-30 Occupational Health and Safety (5, 5)

5140 Ergonomics and Work in Occupational Health and Safety (3)

5210 Ecosystem of Public Health Education (5)

5220 Health and Sickness in the Focus of Public Health Education (2)

5410 Epidemiology (3)

5420 Administration of Public Health (3)

5430 Vital and Medical Statistics (4)

5440 Methods and Materials in Public Health Education (4)

5540 Factors in Problem Solving for Community Health (5)
5550 The Public Health Educator in Community Organization and Development (3)
5560 Functions and Roles of the Public Health Educator (3)
5580 Physical Activity and Health (5)
5705 Advanced Professional Health Education: Health Planning I (3-5)
5710 Advanced Professional Health Education: Health Planning II (3-5)
5715 Advanced Professional Health Education: Health Planning III (3-5)
5730 Dental Health Education (3-5)
5735 Emergency Medical Services (3-5)
5745 Family Health Unit (3-5)
5750 Health and Medical Care Legislation and Law (3-5)
5755 Health Facilities Administration (3-5)
5760 Health Services Administration (3-5)
5785 Occupational Health Unit (3-5)
5790 Self-Care Unit (3-5)
5795 The Training of Paramedical Personnel (3-5)
5840-50-60 Problems in Public Health Education (1-3, 1-3, 1-3)
6000 Doctoral Research and Dissertation
6030 Critical Analysis of Writing and Research in Health Education (3)
6050-60 Seminar in Health Education (3, 3)
6210 Health Aspects of Gerontology (3)
6220 Seminar on the Nation's Health (3)
6230 International Health (3)

Safety (890)
3520 Principles of General Safety (3) Deals with principles, practices and procedures in general safety. Covers safety problems in school traffic, recreation, industry, home, and other public areas.
4410 Driver and Traffic Safety Education (5) Preparation of teachers of driver education in schools and colleges. Students are required to teach at least one non-driver. Valid driver's license required, 3 hrs and 2 labs.
4420 Advanced Driver and Traffic Safety Education (5) Development of competency in teaching of driver education through use of simulation, multimedia and multiple-car driving range. Emphasis placed on teaching skills and supervision. Prereq: 4410.
4430 Sports Safety (5) Accident prevention and injury control in sports activities; philosophy of sports safety; human environmental factors and their interrelationships in sports injury and their control; risk-taking and decision solution strategies; and contributions of sports medicine to safety. 3 hrs lecture and 2 hrs lab.
4720 Workshop in Safety (3-6) Deals with special safety education problems. For advanced undergraduate students, graduate students, teachers, supervisors, and administrators. May be repeated for credit.
GRADUATE
5000 Thesis
5002 Non-Thesis Graduation Completion (3)
5320 Behavioral Problems in Safety Education and Accident Prevention (3)
5330 Problems and Research in Accident Prevention (3)
5340 Organization, Administration and Supervision of Safety Programs (3)
5350 Civil and Defense Education (3)
5720-30-40 Graduate Workshop in Safety (3-6, 3-6, 3-6)
5810-20-30 Problems in Safety (1-3, 1-3, 1-3)
5870-80-90 Current Issues in Safety Education (1, 1, 1)
6010-20-30 Internship and Research in Safety Education (3, 3, 3)

School Health (898)
3000 Foundations of Health Science (3) (Same as Public Health 3000.)
3210 First Aid and Emergency Care (4) (Same as Public Health 3210.)
3410 School Health Instruction (3) Selection of health content in school curriculum.
3420 School Health Services (3) Development, maintenance, and protection of health of students including examination, screening, special services, communicable disease control, emergency care, and school health records.
3510 The School in Community Health (3) Role of teacher in community health education; school's responsibility in promoting healthful living and the place of existing media and agencies in program. Not open to health and physical education majors.
3610 Methods in Elementary Health Instruction (3) Preparation and presentation of health topics. Teaching method is emphasized and student participation stressed. Required for elementary teachers. Prereq: 3510 or Public Health 1110 or Nutrition 1230.
3820 The Teaching of Sex Education (3) Trends, content, methods, and materials.
3850 Methods in Secondary Health Instruction (3) Preparation and presentation of health topics. Teaching method is emphasized and student participation is stressed. Prereq: 3410.
4710 Workshop in School Health Education (3-6) For advanced students, teachers, school administrators, nurses and other para-medical school personnel. Lectures, demonstrations, films, field trips, and supervised research in special health problems. May be repeated for credit.
4810-20-30 Problems in School Health Education (1, 1, 1) Individual identification and study of current problems in school health education. Extensive reading of literature required.

GRADUATE
5000 Thesis
5002 Non-Thesis Graduation Completion (3)
5010 Problems and Practices in School Health (3)
5510 Curriculum Construction in School Health Instruction (3)
5520 Evaluation in School Health Instruction (3)
5530 School Health Program Surveys (3)
5620 School Health Administration and Supervision (3)
5630-40 Workshop in School Health Education (3, 3)
5720-30-40 Graduate Workshop in Health Education (3-6, 3-6, 3-6)
5810-20-30 Problems in School Health Education (1-3, 1-3, 1-3)
6000 Doctoral Research and Dissertation
6030 Critical Analysis of Writing and Research in Health Education (3)

6050-60 Seminar in Health Education (3, 3)

Physical Education (764)

Professors:

Associate Professors:
E.T. Howley, Ph.D. Wisconsin; N.E. Lay, Ph.D. Florida; B.J. Mead, Ph.D. Purdue.

Assistant Professors:
P.A. Borovlaik, M.S. Tennessee; C.J. Johnson, M.S. Tennessee; J.L. Lewis, Ed.D. Tennessee; M.G. McCutchen, M.S. Tennessee; B.L. Morgan, B.S. Brigham Young; C.G. Shell, M.A. Florida State; I.T. Sigler, M.S. Tennessee; B.G. Ulrich, M.A. North Carolina.

Instructors:

1000 Career Orientation and Performance Requirements in Physical Education (2) Introduction to physical education with special emphasis on analyzing motor skills of each student. Satisfactory-No Credit. No substitution.

1020 Physical Education: Swimming (1)
1021 Physical Education: Bowling (1)
1022 Physical Education: Basketball (1)
1032 Physical Education: Tennis (1)
1036 Physical Education: Soccer-Speedball (1)
2022 Physical Education: Volleyball (1)
2032 Physical Education: Golf (1)
2040-50-60 Dance Production (2, 2, 2) Preparation and presentation of public dance performances. Prereq: approval of instructor.
2070 Orientation in Dance—Appreciation (3) History, aesthetic principles, and current trends in dance.
3000 Administration of Athletics (2) Conduct of program of athletic sports in high schools and colleges.
3010 Beginning Dance Techniques (2) Analytical and practical study of modern dance movements.
3040 Beginning Jazz Techniques (2) Instruction and practice in styles and techniques of jazz dance.
3050 Rhythmic Analysis (2) Emphasis on analysis of organic movement. Prereq: junior standing; consent of instructor.
3060 Beginning Dance Composition (2) Experience in creative forms of dance. Prereq: 3010.
3070 Beginning Ballet Techniques (2) Introductory course designed to acquaint students with discipline of classical ballet, cultural, and educational values, and relationship to other dance forms.
3080 Officiating Women's Volleyball (3) Officiating based on rules of National Association for Girls and Women in Sport. Ed.D. pool tests and ratings will be given. Both men and women are encouraged to take the course.

*See also the courses listed under "Service Program in Physical Education" later in this section."
Training or Senior Lifesaving with additional practice in teaching of swimming.


3560 Human Growth and Motor Development (3) Structural and functional changes in man from birth to old age, and relationship of changes to physical performance and skill development.


3610-20 Individual and Dual Sports (1, 1) Instruction, student teaching, and practice in organizing adult sport and recreational activities suitable for schools, churches, or community recreation centers.

3650 Teaching Strategies and Program Implementation in Elementary Physical Education (3) Understanding and employing teaching strategies appropriate to the elementary physical education, and study of program content and implementation. Prereq: 3570.

3660 Basic Movement Sequences for Children (3) Movement patterns and skills which are fundamental to movement activity, with emphasis upon designing and presenting sequential learning tasks and creative activity experiences. Prereq or Coreq: 3650.

3670 Practicum in Developmental Movement for Early Childhood (3) Experiences in designing and presenting developmental movement tasks to preschool children. Prereq or Coreq: 3660.

3680 Structured Movement Activities in Elementary Physical Education (4) Self-testing, games and sports, and dance activities included in elementary school physical education program, with emphasis upon designing and presenting sequential learning experiences. Prereq: 3670.

3710 Camping (2) Theory and practice in leadership with practical experience in camp craft skills.

3880 Social Recreation (3) Theory and practice in social recreation for camps, community centers, clubs, and schools. Course includes folk and square dance, quiet and active games, skits, stunts, other recreational activities, and program planning. (Same as Recreation 3880.)

4010 Advanced Dance Technique (2) Development, integration, and synthesis of previous dance vocabulary; emphasis on analysis and practice of dance principles, solo and group work. Prereq: 3200.

4020 Practicum in Dance Production (2) Prereq: consent of instructor.

4060 Advanced Dance Composition (2) Creation and development of ideas, themes, and dance forms; solo and group work. Prereq: 3060.

4070 Stagecraft for Dance Production (2) Equipment, light design, properties, sets, and stage management.

4110 Adapted Physical Education (3) Classification of atypical students who require modified programs in physical education; activities and class organization suitable for required or special physical education classes.

4120 Administration of Physical Education (3) Selected topics in organization and administration problems related to physical education programs in schools. Emphasis placed on human relations approach to solving problems in administration.
5620 Experimental Techniques in Applied Physiology (3)
5650 Scientific Bases for Physical Education (3)
5810-20-30 Seminar in Physical Education (1, 1, 1)
5910-20-30 Problems and Projects in Physical Education (1-3, 1-3, 1-3)
6000 Doctoral Research and Dissertation
6010 Seminar in Physical Education (1)
6220 Independent Research (3)
6410 Practicum in Kinesiology (3)
6510-20 Issues and Problems in Physical Education (3, 3)
6610 Seminar in Exercise Physiology (2)
6640 Research Participation in Applied Physiology (1-6)
6810-20 Practicum (2, 2)

Service Program in Physical Education
The service program in physical education provides all students a program of physical education planned in accordance with their present and future needs and interests.

2701 ARC Advanced Life Saving (2)
2702 ARC Water Safety Instructor Training (2)
2703 ARC Water Safety Instructor for Handicapped (2)
2705 Archery (2)
2707 Badminton Elementary (2)
2708 Badminton Intermediate (2)
2711 Ballet Elementary (2)
2712 Ballet Intermediate (2)
2713 Ballet Advanced (2)
2714 Basketball (2)
2715 Bowling Elementary (2)
2716 Bowling Intermediate (2)
2717 Bowling Advanced (2)
2719 Equitation Elementary (2)
2725 Field Hockey (2)
2727 Flag Football (2)
2728 Folk and Square Dance (2)
2730 Foundations of Physical Fitness (Lecture, Lab, Activity) (2)
2731 Golf Elementary (2)
2732 Golf Intermediate (2)
2734 Women’s Elementary Gymnastics (Coed) (2)
2735 Women’s Intermediate Gymnastics (Coed) (2)
2736 Women’s Advanced Gymnastics (Coed) (2)
2737 Handball Elementary (2)
2738 Handball Intermediate (2)
2739 Handball Advanced (2)
2741 Ice Skating Elementary (2)
2742 Ice Skating Intermediate (2)
2743 Ice Skating Advanced (2)
2745 Lacrosse Elementary (2)
2747 Modern Dance Elementary (2)
2748 Modern Dance Intermediate (2)
2749 Modern Dance Advanced (2)
2750 Modern Jazz (2)
2752 Paddleball Elementary (2)
2753 Paddleball Intermediate (2)
2755 Racquetball Elementary (2)
2756 Physical Fitness (Conditioning Program) (2)
2757 Men’s Elementary Gymnastics (Coed) (2)
2758 Personal Safety and Defense for Women (2)
2759 Men’s Intermediate Gymnastics (Coed) (2)
2760 Soccer (2)
2761 Men’s Advanced Gymnastics (Coed) (2)
2762 Social Dance (2)
2764 Softball (2)
2765 Sport in Society (2)
2766 Racquetball Intermediate (2)
2767 Squash Elementary (2)
2770 Racquetball Advanced (2)
2771 Swimming Elementary (2)
2772 Swimming Elementary II (2)
2773 Swimming Intermediate (2)
2774 Swimming Advanced (2)
2775 Synchronized Swimming Elementary (2)
2776 Synchronized Swimming Intermediate (2)
2778 Tap Dance Elementary (2)
2779 Tap Dance Intermediate (2)
2781 Tennis Elementary (2)
2782 Tennis Intermediate (2)
2783 Tennis Advanced (2)
2784 Track and Field (2)
2785 Tumbling Elementary (2)
2786 Tumbling Intermediate (2)
2787 Tumbling Advanced (2)
2789 Volleyball Elementary (2)
2790 Volleyball Intermediate (2)
2791 Volleyball Advanced (2)
2792 Weight Control and Figure Improvement (2)
2794 Weight Training Elementary (2)
2795 Weight Training Intermediate (2)
2797 Wrestling Elementary (2)
2798 Wrestling Intermediate (2)

Recreation (853)
Associate Professor: M.L. Peters (Chairman), Ph.D. Illinois.
Assistant Professors: P. Borovick, M.S. Tennessee; C.J. Johnson, M.S. Tennessee; K.L. Krick, Dr. Rec. Indiana.
1000 Field Practice (1-4) Supervised practice in an approved agency offering leisure services. May be taken for variable credit up to 6 hours. Each one-hour credit requires 25 contact hours in the field agency. For recreation students only. Prereq: Recreation 1000.
1000 Field Practice (1-6) Supervised practice in an approved agency offering leisure services. May be taken for variable credit up to 6 hours. Each one-hour credit requires 25 contact hours in the field agency. For recreation students only. Prereq: Recreation 1000 & 2000.
3100 Recreation Leadership Procedures (3) Principles and practice of recreation leadership; techniques and methods of working with individuals and groups in leisure activity.
3140 Philosophical Foundations of Recreation (3) Examination of recreation as personal experience; theories of play; philosophies of leisure and relationship to economy, ecology, health, government, culture, and self-realization; history of recreation movement.
3200 Planning Leisure Programs (3) Principles and methods employed in planning effective and well-balanced leisure time programs for varied groups in various settings.
3301 Outdoor Recreation Skills and Techniques I (3) Fundamentals necessary for safe participation in outdoor recreation activities such as: skis, shooting, hunting, casting and angling, power boating, rappelling, and backpacking. Emphasizes enjoyment of natural environment without disturbance or destruction of plant and animal habitats. Prereq: consent of instructor.
3302 Outdoor Recreation Skills and Techniques II (3) Instruction in safe conduct of outdoor recreational activities such as: sailing, skin diving, scuba diving, orienteering, and nature interpretation without disturbance of environment. Provision of outdoor recreation experiences for the handicapped. Prereq: consent of instructor.
3880 Social Recreation (3) (Same as Physical Education 3880)
4130 Recreation Administration (3) Introduction to recreation administration, including planning, personnel, areas and facilities, program services, finances, and public relations. Prereq: 1100, 3100, 3140.
4200 Survey of Recreation for Special Populations (3) Responsibility of recreation profession to minority groups whose leisure opportunities and needs may require special servicing.
4500 Specialized Study in a Selected Area of Recreation (1-9) Comprehensive study in a selected specialized area within the broad field of recreation. For recreation students only. May be taken for variable credit up to 9 hours. May be repeated for a maximum of 9 hours credit with permission of the division. Prereq: Consent of instructor.

GRADUATE
5000 Thesis (9)
5002 Non-Thesis Graduation Completion (3)
5140 Leisure Service Delivery Systems (3)
5150 Current Issues in Recreation (3)
5240 Therapeutic Recreation (3)
5300 Seminar in Recreation (1)
5440 Problems and Projects in Recreation (1-9)
5450 Specialized Study in Recreation (1-9)
Special Education and Rehabilitation (933)

Professors:
R. M. Frey (Head), Ed.D., Illinois; E. E. Doll, Ph.D., Penn. State University; J. V. Easley (Emeritus), Ph.D., Michigan; C. H. Harris, Ed.D. Northern Colorado; W. M. Holbert, Ph.D., Texas.

Associate Professors:
L. L. Coleman, Ph.D., Kent; E. Gickling, Ph.D., Southern Illinois; M. C. Hannum, Ed.D., Northern Colorado; C. G. Miel, Ed.D., Texas; J. M. Miller, Ed.D., Auburn; L. C. Murphy, Ed.D., SUNY.


Assistant Professors:

Instructors:
R. F. Bynum, M.S. Florida State; R. L. Dominque, M.S. Tennessee; R. N. Freeman, M.A. MTSU.

M. H. Raulerson, M.A. Kentucky; J. E. Siekaff, B.A. Gustavus Adolphus College; W. D. Smith, M.S. Florida State.

Lecturers:
S. W. Mulkey, M.S. Tennessee; O. E. Reece, B.S. Memphis State.

An experience program for regular teachers, special teachers, and attendance teachers may be planned to meet the needs of exceptional children in relationship to the program of general and special education. Specialized courses may be distributed over the several areas of exceptional children with emphasis in an area of special need or need. Facilities are available for continuous observation and participation in particular relationships with exceptional children who are hospitalized, homebound, in residential schools, special classes, or regular classes.

Course sequences may be planned in the areas of (1) crippling and special health conditions; (2) acoustically handicapped; (3) mentally retarded; (4) gifted; (5) partially seeing; (6) speech correction; (7) socially or emotionally maladjusted; (8) rehabilitation counselor education.

The specialized professional courses in special education may be taken at the undergraduate or graduate levels. For planning a program, the student should consult an advisor in the chosen area.

DISABILITY EXAMINER EDUCATION

5700 Disability Examination: Issues, Processes, and Programs (4)

5710-20 Medical Aspects of Disability Evaluation (4, 4)

5730 Vocational Assessment in Disability Evaluation (3)

5740 Problems/Practicum in Work Evaluation (3)

5750 Principles and Problems of Disability Evaluation (3)

5760 Seminar: Functional Capability Assessment (3)

5770-71 Current Problems in Disability Claims Evaluation (1-3, 1-3)

CRIPPLING AND SPECIAL HEALTH CONDITIONS

4130 Exceptionalism in the Brain-Injured Child (3) Nature of brain-injured child; skills for identifying educational, physical, and emotional characteristics; special educational techniques.

4150 Education Programs of Hospitalized and Homebound Children (3) School and home responsibilities for physical care and social relationships, educational adjustment, vocational needs, and cooperation with related service resources.

4840 Educational Problems of the Cerebral Palseid Child at Home and School (3) Physical, social, and educational needs of cerebral palseid; evaluative techniques; related services.

4921 Student Teaching in Crippling and Special Health Conditions (3-15) Observation and supervised practicum in home, hospital, and classroom.

Satisfactory-No Credit.

EDUCATION OF THE ACOSTICALLY HANDICAPPED

2110-20-30 Field Experience (1-1, 1) Students observe, tutor, and perform teacher related tasks in Special Education Programs. S/N.

3210-20-30 Field Experience II (1, 1, 1) Students observe, tutor, and perform teacher related tasks in Special Education Programs. S/N.

4000 Rehabilitation Practicum (3) Evaluation of client data in predicting rehabilitation prognosis. PreReq: 4230.

4190 Speech Development of the Hearing Impaired (3) Anatomy and physiology of speech system. Relationship of hearing to speech development. Theories and techniques of speech development and improvement; for hearing impaired children. Prereq: Speech Pathology 4190.

4200 Practicum in Speech Development of Hearing Impaired (3) Application of theories and techniques of speech development and improvement with hearing impaired children. Prereq: 4190 and permission of instructor. (Same as Audiology and Speech Pathology 4200.)

4210 Language Development of the Hearing Impaired (3) Systems by which formal language is presented. Prereq: as Audiology and Speech Pathology 4210.

4220 Language Development for the Hearing Impaired II (3) Techniques; various systems by which formal language is presented. Prereq: as Audiology and Speech Pathology 4220.

4230 Communication Processes for the Hearing Impaired (3) Various communicative tasks required for hearing impaired person; speech and language development; auditory training, speech reading, and language in relation to other forms of communication. Observation practicum. (Student must acquire a degree of proficiency in use of manual language.) Prereq: Consent of instructor.

4240 Nature of Hearing Impairment and Deafness (3) Basic principles of anatomy and physiology of hearing; nature and causes of hearing loss; methods and instrumentation for assessment of hearing level; interpretation of audiograms; selection and use of hearing aids; relation of audiologic services to medical and other rehabilitative disciplines. Observations and practice.

4250 Introduction to the Education and Psychology of the Deaf (3) Offered for those planning to enter field of teaching the deaf and hard-of-hearing. Review of history of education of the deaf. Research studies relating to psychology, social adjustment, and learning of the deaf. Survey of professional literature in deafness and normal hearing. (Same as Audiology and Speech Pathology 4250.)

4280 Curriculum Development in Elementary and Secondary Schools for the Deaf (3) Adaptation of curriculum development and methods in public school education to meet needs of deaf and hard of hearing students in residential and integrated settings.

4290 The Teaching of Reading to Hearing Impaired Children (3) Reading activities, developmental approaches, theories, and specialized materials for curricula in teaching reading.

4361-61-71 Practicum in Special Education (3, 3, 3) Students observe and deliver units of instruction in Special Education Programs. S/N.

4719 Audiology Laboratory (1) (Same as Audiology and Speech Pathology 4719.)

4870 Student Teaching of Acoustically Handicapped Children (3) Supervised practicum with preschool, day school, and residential pupils. Satisfactory-No Credit.

4871 Practicum with Acoustically Handicapped Children (6) Satisfactory-No Credit.

5220 Linguistics in the Education of the Auditorially Impaired (3)

5240 Seminar in Language Remediation for the Hearing Impaired (3)

5280 Seminar on Educational Implications of Language Deficiency (3)

5310-20 30 Manual Communication (2, 2, 2)

5410 Instructional Media for the Handicapped: Design, Production, and Evaluation of Prototypical Curriculum Materials for the Deaf (9)

5490 Educational and Vocational Guidance of the Deaf and the Hard-of-Hearing (3)

5820 Curriculum Development Applied to Programs for the Hearing Impaired (3)

EDUCATION OF THE EMOTIONALLY DISTURBED

4610 Nature and Characteristics of Learning and Behavior Disorders (3) Forms of academic and socially disturbing behavior, degrees of severity, possible causes, and relationships to each other. Relationships with respect to personality characteristics and developmental factors interpreted through personality theory, psychodynamic theory, and practical situations in which learning and behavior disorders may occur.

4620 Education of the Emotionally Disturbed Child (3) Managing behaviors, models for instruction, teaching techniques and materials, and teacher-pupil family interpersonal relationships as basic to academic achievement for the pupil. Prereq: 4610.

4630 Practicum in Residential Settings Serving Children with Disturbing Behavior (3) Practice in scientific identifying, observing, and recording disturbing behaviors. Initiating behavior changes regarding academic and social behaviors. To perform in a tutorial capacity within a residential classroom, and to take part in discussion and evaluation of relevant academic curriculum and reinforcement schedules. Prereq: 4610 and 4620 or permission of instructor.

4640 Practicum in Public School Systems Serving Children with Learning and Behavior Problems (6) Academic tutoring in reading and/or fluency capacity within regular classrooms. Particular emphasis on practice in individualizing instruction for learning and behavior problem children within the regular classroom setting. Discussion and evaluation of relevant methods and materials unique to each teaching situation. Prereq: 4610 and 4620 or permission of instructor.

4924 Student Teaching of the Emotionally Disturbed (3) Individual tutoring and classroom observation and teaching. Prereq or parallel: Education, Curriculum and Instruction 4720 or 4820. Satisfactory-No Credit.

EDUCATION OF THE MENTALLY RETARDED

4110 The Nature and Concept of Mental Retardation (3) Identification, description, and study.

4120 Education of the Mentally Retarded Child (3) Philosophy and rationale underlying the teaching and guidance of the mentally retarded; methods and materials in special and regular classes. Prereq or parallel: 4110.

4440 High School Program for the Mentally Retarded (3) Trends, issues and research relating to core and work study programs.

4810 Student Teaching Mental Retardation (3) Prereq: Major in education of mental retardation. Satisfactory-No Credit.
4811 Student Teaching Mental Retardation (9) Pre-req: Major in education of mental retardation. Satisfactory-No Credit.

4922 Student Teaching of the Educable Mentally Retarded (3) Observation and supervised practicum. Satisfactory-No Credit.

5111 Psychology of Mental Retardation (3)

5112 Psychology of the Severely Mentally Retarded (3)

5113 Advanced Curriculum for the Mentally Retarded (3)

EDUCATION OF THE VISUALLY HANDICAPPED

4160 Education of Partially Sighted Children (3) Curricular adjustments and materials; home visits for parents' cooperation in medical care and special needs.

4850 Eye Problems Encountered by the Teacher (3) Eye anatomy and hygiene; common diseases and defects; testing and treatment; educational adjustments for specific eye conditions; related service resources.

4923 Student Teaching of the Partially Seeing (3) Observation and supervised practicum in special and regular classes. Satisfactory-No Credit.

SCHOOL SPEECH AND HEARING THERAPY

3310 Articulation Disorders (4) (Same as Audiology and Speech Pathology 3310.)

3710 Audiology I (4) (Same as Audiology and Speech Pathology 3710.)

4030 The Public School Speech and Hearing Program (3) Organization, administration, and procedures.

4040 Appraisal of Speech and Language Disorders (4) (Same as Audiology and Speech Pathology 4040.)

4310 Stuttering (4) (Same as Audiology and Speech Pathology 4310.)

4320 Clinical Practice in Speech Pathology (1-6) (Same as Audiology and Speech Pathology 4320.)

4330 Clinical Practice in Speech Pathology (1-6) (Same as Audiology and Speech Pathology 4330.)

4340 Clinical Practice in Speech Pathology (1-6) (Same as Audiology and Speech Pathology 4340.)

4341 Clinical Practice in Speech Correction in the Public Schools (3) Prereq: Audiology and Speech Pathology 4320-30-40, Special Ed. 4030 and consent of instructor. Satisfactory-No Credit.

4342 Seminar in Speech Correction in Public Schools (3) Prereq: Audiology and Speech Pathology 4320-30-40, Special Ed. 4030 and consent of instructor.

4400 Voice Disorders (4) (Same as Audiology and Speech Pathology 4400.)

4450 Clinical Practice in Audiology (1-6) (Same as Audiology and Speech Pathology 4450.)

4460 Clinical Practice in Audiology (1-6) (Same as Audiology and Speech Pathology 4460.)

4470 Clinical Practice in Audiology (1-6) (Same as Audiology and Speech Pathology 4470.)

4700 Audiology for Educators of the Deaf (4) (Same as Audiology and Speech Pathology 4700.)

4720 Audiology II (4) (Same as Audiology and Speech Pathology 4720.)

4930 Aural Rehabilitation: Speechreading and Auditory Training (4) (Same as Audiology and Speech Pathology 4930.)

4939 Laboratory in Aural Rehabilitation (1) (Same as Audiology and Speech Pathology 4939.)

4940 Advanced Aural Rehabilitation (4) (Same as Audiology and Speech Pathology 4940.)

5040 Advanced Clinical Practice in Audiology (1-6)

5380 Cerebral Palsy (3)

5390 Cleft Palate (3)

5540 Seminar in Language Pathology (3)

REHABILITATION COUNSELING

5100 Orientation to Rehabilitation (3)

5110 Medical Aspects of Rehabilitation Counseling (3)

5120 Psycho-Social Aspects of Disability (3)

5130-40 Seminar in Rehabilitation (3, 3)

5150-60 Internship in Rehabilitation (9, 9)

5170 Systematic Human Relations Training I (3)

5180 Systematic Human Relations Training II (3)

GENERAL COURSES

3333 Education of the Exceptional Child (3) Principles, characteristics, and special needs; local and state programs for diagnosis and care; educational provisions in regular or special classes; home teaching; social and vocational guidance.

3520 Language-Speech Handicapped Child in the Classroom (3) Recognizing and understanding speech problems; observing normal and defective speech development in children; incorporating speech improvement activities into the curriculum. For students not majoring in speech and hearing.

4350-60-70 Problems in the Education of Exceptional Children (3, 3, 3) Prereq: Consent of instructor.

4740 Diagnostic and Remedial Approaches in Special Education and Rehabilitation (3) Critical examination of specialized tests and methods employed in measurement of educational needs of children and adults who are mentally retarded, learning disabled, multiple handicapped or physically handicapped.

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5260 Education of Gifted Children (3)

5400 Assessment and Remediation of Learning Disabilities (3)

5401 Prescriptive Teaching for Children with Learning Disabilities (3)

5402 The Exceptional Child in the Regular Classroom (3)

5403 Resource Teachers for the Handicapped (3)

5450-60-70 Experience in Teaching and Supervision of Exceptional Children (1-6, 1-6, 1-6)

5510-20-30 Administrative Practice or Problems in Institutional Care of Children (3, 3, 3)

5550-60-70 Problems in the Education of Exceptional Children (3, 3, 3)

5620 Counseling Parents of Exceptional Children (3)

5630 Psychology of the Exceptional Child (3)

5830 Seminar: Issues and Theories in the Education of the Exceptional Child (3)

5910-20-30 Problems in Lieu of Thesis (3, 3, 3)

5970 Juvenile Delinquency and the School (3)

Vocational-Technical Education (988)

Professors: R.J. Woodin (Emeritus), Ph.D. Ohio State; G.R. Rice, Ph.D. Ohio State.

Associate Professors: M.D. Miller (Head), Ed.D. Oregon State; W.A. Cameron, Ph.D. Ohio State; R.R. Hanson, Ph.D. Purdue; E.R. Smith, Ph.D. Ohio.


3000 Introduction to Vocational Education (1) Introductory and exploratory experiences concerned with teaching careers in all areas of vocational education. Includes visitation within a vocational setting.

4750 Audiovisual Methods and Techniques (3) (Same as Curriculum and Instruction 4750 and Library and Information Science 4750.)

GRADUATE

5002 Non-Thesis Graduation Completion (3)

5010 History and Organization of Vocational-Technical Education (3)

5020 Competency Based Vocational Education (3)

5040 Guidance and Pupil Personnel Services in Education (3)

5180-90-5200 Educational Specialist Research and Thesis (3, 3, 3)

5250 Issues and Trends in Vocational-Technical Education (3)

5260 Continuing Education in Vocational-Technical Education (3)

5270 Placement, Follow-up, and Evaluation Procedures in Occupational Education (3)

5300 Occupational Program Development for Disadvantaged Persons (3)

5310 Supervision of Vocational-Technical Education (3)

5350-60-70 Problems in Vocational-Technical Education (1-6, 1-6, 1-6)

6000 Doctoral Research and Dissertation

6040 Seminar in Vocational-Technical Education (1, 1, 1)

6210 Curriculum Planning in Vocational-Technical Education (3)

6220 Program Planning and Development in Vocational-Technical Education (3)

6230 Evaluation of Vocational-Technical Education Programs (3)

6310 Administration of Vocational-Technical Education (3)

6411-12-13 Internship in Vocational-Technical Education (3, 3, 3)

Agricultural Education (056)


Associate Professors: D.G. Craig, Ed.D. Cornell; J.D. Todd (Chairman), Ed.D. Illinois.

3450 Agricultural Experience and Future Farmers of America Programs (3) Prereq: consent of instructor.

3460 Methods in Teaching Agriculture (3) Prereq: consent of instructor.
3470 Program Development and Adult Education in Agriculture (3) Prereq: consent of instructor.
4350-60 Student Teaching in Agricultural Education (5, 6) Offered in off-campus centers. Application must be filed not later than final quarter of junior year. Courses must be taken concurrently. Prereq: 3450, 3460, 3470, consent of instructor. Undergraduate credit only. Satisfactory-No Credit.
4510-20-30 Problems in Agribusiness Education (1-6, 1-6, 1-6) Total not more than 9 hours.
4710-20-30 Seminar in Agribusiness Education (1, 1, 1) Prereq: 4350 or consent of department head.
GRADUATE
5000 Thesis
5002 Non-Thesis Graduation Completion (3)
5011-21-31 Problems in Lieu of Thesis (3, 3, 3)
5110-20-30 Current Problems in Agriculture Education (3, 3, 3)
5220-30 Agricultural Education in Off-Farm Agricultural Occupation (3, 3)
5340 Agricultural Education for First-Year Teachers (3)
5470 Adult Education in Agriculture (3)
5480 Supervision of Student Teaching in Agricultural Education (3)
5490 Supervised Occupational Experience in Agriculture (3)
5620 Teaching Agricultural Mechanization in Vocational Agriculture (3)
5750-60-70 Special Problems in Agricultural Education (3, 3, 3)

Business Education (207)

Professors:
G.A. Wagoner (Chairman), M.S. Indiana; E.W. Davis (Emeritus), M.A. New York University.

4010 Principles of Business Education (3) Historical background and present status; principles of vocational education applied to business education; guidance activities of business teachers.
4120 Teaching General Business Subjects (2) Materials, evaluation procedures and recent research in subject fields.
4130 Teaching Typewriting (2) Materials, methods evaluation procedures and recent research in subject fields.
4140 Teaching shorthand (2) Materials, methods, evaluation procedures and recent research in subject fields.
4150 Teaching Bookkeeping (2) Materials, methods, evaluation procedures and recent research in subject fields.
4230 Curriculum Construction in Business Education (3)
4610-20-30 Problems in Business Education (3, 3, 3)
4611 Problems in Business Education (1)
GRADUATE
5000 Thesis
5002 Non-Thesis Graduation Completion (3)
5011 Problems in Lieu of Thesis (3)
5110 Graduate Seminar: Current Problems (3)

5111-12-13 Graduate Seminar: Current Problems in Business Education (1, 1, 1)
5120 Graduate Seminar: Tests and Measurements (3)
5130 Graduate Seminar: Guidance (3)
5140 Organization and Operation of Area Vocational-Technical Schools (3)
5410-20-30 Practicum in Business Education (2, 2, 2)
5510 Evaluation of Research in Business Education (3)
5611-21-31 Problems in Business Education: Typing (3, 3, 3)
5612-22-32 Problems in Business Education: Shorthand (3, 3, 3)
5613-23-33 Problems in Business Education: Bookkeeping and Accounting (3, 3, 3)
5614-24 Problems in Business Education: Clerical Practice (3, 3, 3)
5615-25-35 Problems in Business Education: General Business (3, 3, 3)
5617 Problems in Business Education: Business Law (3)
5618-28-38 Problems in Business Education: Administration (3, 3, 3)
5619 Problems in Business Education: Psychology of Skill-Building (3)
6110-20-30 Current Issues in Business Education (3, 3, 3)
6210-20-30 Advanced Studies in Business Education (3, 3, 3)
6410 Higher Education for Business (3)

Distributive Education (273)

Professor: C.B. Cookley (Chairman), Ph.D. Wisconsin.
Assistant Professor: D.E. McNelly, Ed.D. Missouri.

4110 Student Teaching in Distributive Education (9) Full-time, supervised experience in classroom teaching, coordination, club work, and adult education. Prereq: 4310, 4320, Education 2030, Educational Psychology 3810, 4140 or equivalent. Undergraduate credit only. Satisfactory-No Credit.
4120 School and Community Relationships for the Teacher Coordinator (6) Content dependent upon teaching assignment; human relations in and out of school, parent, business, and other community contacts. Must be taken with 4110. Undergraduate credit only. Satisfactory-No Credit.
4130 Areas of Distribution (3) Marketing, product or service technology, social skills, basis skills, and distribution as these areas affect the distributive education curriculum in secondary and post-secondary programs.
4140 Supervised Distribution Experience (3) Minimum 200 hours experience in approved distributive business; concurrent analytic project.
4310 Organization and Operation of Distributive Education Programs (3) Background and development needs, federal state legislation; curriculum implications; establishing, evaluating, reporting, and improving the programs.
4320 Methods and Materials in Distributive Education (3) Prereq: 4310 or permission of instructor.
4330 Coordination Techniques in Distributive Education (3) Selecting training agencies; job analysis; selecting and briefing the training supervisors; advisory committees; adult education and other community services. Prereq: 4310 and 4320.

4510-20-30 Problems in Distributive Education (3, 3, 3) Selected research problems in teaching and coordinating distributive education programs.

GRADUATE
5000 Thesis
5002 Non-Thesis Graduation Completion (3)
5110 Administration and Supervision of Distributive Education (3)
5120 Organizing and Teaching Adult Distributive Education (3)
5210-20-30 Special Problems in Distributive Education (3, 3, 3)
5616-26-36 Problems in Distributive Education: Retailing (3, 3, 3)

Home Economics Education (490)

Professors: N.P. Logan (Chairman), Ed.D. Tennessee; I. Brown (Emeritus), Ph.D. Ohio State.
Associate Professor: S.W. Miller, Ph.D. Florida State.
Assistant Professor: J.H. McInnis, Ph.D. Florida State.

2240 Introduction to Teaching Vocational Home Economics (3) Introductory and exploratory experiences concerned with a teaching career in vocational home economics. Includes observation and participation within various educational and vocational settings.
3240 Strategies of Teaching Home Economics (4) Teaching strategies, methods, techniques and use of media. Field experience included. Prereq: 2240.
4240 Curriculum Development in Vocational Home Economics (4) Planning of curriculum and design of instruction for the classroom. Prereq: 2240, 3240. To be scheduled one of the two quarters immediately preceding student teaching.
4310 Student Teaching (6) Underlying philosophy, techniques, and materials; relation to school program and community. Satisfactory-No Credit.
4509 Field Experience in Home Economics Related Occupations (4) Supervised field experience and seminar in teaching of occupations which utilize home economics skills and knowledge. Prereq: permission of instructor. Satisfactory-No Credit. May be repeated. Maximum 8 hours credit.
4610 Student Teaching (6) Open to seniors or graduate students who have successfully completed one year's study at The University of Tennessee. Off-campus teaching center; minimum of eight weeks. Prereq: 2240, 3240, 4240. Coreq: 4310. Satisfactory-No Credit.
4718-28-38 Honors: Home Economics Education (3, 3, 3) For juniors and seniors showing special ability and interest in home economics education. Prereq: permission of department head.

GRADUATE
5000 Thesis
5002 Non-Thesis Graduation Completion (3)
5130 Furthering Good Human Relationships in the Classroom (3)
5220 Evaluation in Home Economics (3)
5310 The Problem Method of Teaching (3)
5440 Curriculum Development and Implementation in Family Relationships Instruction (3)
5520 The Teaching of Home Economics in College (3)
5530 Organization of the Homemaking Curriculum in Secondary Schools (3)
5610 Supervision of Home Economics in the Public Schools (3)
construction with emphasis placed upon furniture and built-ins. Prereq: 1661.

3010 Related Science, Mathematics, and Technology in Occupations (9) Credit may be earned only through examination. Applicants shall be limited to persons already holding a vocational teaching certificate.

3020 Manipulative Skills in Occupations (9) Credit may be earned only through examination. Applicants shall be limited to persons already holding a vocational teaching certificate.

3030 Knowledge of Related Subjects in Occupations and Personal Qualifications (9) Credit may be earned only through examination. Applicants shall be limited to persons already holding a vocational teaching certificate.

3040-41-42 Physical Testing Technology (3, 3, 3) Skills and techniques involved in radiography, metallurgy, tensile and compression testing, and other destructive and nondestructive testing methods. Undergraduate credit only.

3050-51-52 Welding, Brazing, Cutting, and Related Processes (3, 3, 3) Various types of welding equipment and fundamental techniques of welding. Undergraduate credit only.

3060-61-62 Electronic Technology (3, 3, 3) Basic principles and applications of electronics. Undergraduate credit only.

3080-81-82 Machining of Metals (3, 3, 3) Introduction to machine shop theory and procedures which provide information and practice in using basic machine tools. Undergraduate credit only.

3110 History and Philosophy of Industrial Education (3)

3210-20-30 Part-time Programs in Cooperative Industrial Training (3, 3, 3) Principles of organization, methods, and materials.

3310 Shop Organization and Management (3)

3320-30 Materials and Methods for Teachers of Shop and Related Subjects (3, 3)

3340 School Shop Safety (3)

3610 Development and Utilization of Advisory Committees (3) Philosophy and rationale for use of craft advisory committees. Their selection, organization, implementation and utilization.

3612 Automotive Mechanics (3) Advanced laboratory experience in tune-up, overhaul, transmission, and the suspension system. Prereq: 1610.

3621 Industrial Graphics (3) Auxiliary views, sections, conventional practices, fasteners, dimensioning, working drawings and machine drafting. Prereq: 1620.

3632 Industrial Electricity and Equipment Control (3) Involves construction and application of industrial electric equipment both single and polyphase. Production, use and control of electric current. Emphasis placed on circuit tracing, installation, maintenance, and trouble connecting industrial equipment. Prereq: 1630.

3640 Advanced General Metals (3) Provides experiences in areas of hot and cold forming of metals, molding and metal finishing, tool grinding, heat treatment, fabrication and precision measurement. Prereq: 2641.

3651 Plastic Processing (3) Plastics production equipment and related product design and processing of plastics. Prereq: 2652 and 1661.

3662 Construction Methods and Materials (3) Materials and methods used in residential construction, including location and excavation, foundation, framing, roofing, interior and exterior finishes and acceptable practices in assembly. Prereq: 1661.

4073-74-75 Tool and Machine Design (3, 3, 3) Tool and machine design, calculations, design systems, and designing procedures. Undergraduate credit only.

4090-91 Numerical Control (3, 3) Tooling, manual programming, automatic programming, automatic programming language, and use of automatic programmer as a computer. Undergraduate credit only.

4110 Foremanship Training by the Conference Method (3)

4120-30 Job Analysis (3, 3) Principles, practice, instructional methods.

4210 Methods of Teaching Shop and Related Subjects (3) Undergraduate credit only.

4220 Vocational Technical Laboratory Equipment Maintenance (3) Understanding of preventive maintenance, maintenance and calibration of instruments and power equipment used in industrial education shops.

4310-20 Curriculum Building in Trade and Industrial Subjects (3, 3) Arranging course material in trade subjects, following up results of job analyses, preparing checking sheets and individual job sheets in both trade and related subjects. Prereq or coreq: 4120.

4350-60-70 Problems in Industrial Education (3, 3, 3)

4410 Directed Teaching (6) Observation of all types of trade and industrial classes; preparation of lesson plans and subsequent evaluation. Credit by examination and satisfactory performance. Prereq: Senior standing in industrial education. Prereq or parallel: 4210. 1 hr and 5 periods. Undergraduate credit only. Satisfactory-No Credit.

4420 Directed Teaching (9) Guided observation and teaching in trade, industrial, and/or technical programs in secondary, area, adult, post secondary, and junior college industrial vocational and technical curricula. Undergraduate credit only. Satisfactory-No Credit.

4510-11-12 Seminar in Industrial Education (3, 3, 3) Educational innovations, current events, problems, and other topics associated with the field of industrial education.

4520-21-22 New Developments in Industrial Education (3, 3, 3) Developments, pressing problems, and recent trends in the field of industrial education as presented by a coordinating instructor in conjunction with knowledgeable resource personnel.

4621 Special Topics in Drafting (3) Industrial practices in specialized areas of drafting selected for the individual student. Prereq: 6 hrs drafting.


4670 Manufacturing Processes (3) The manufacturing processes of industry and their relationship to careers. Prereq: 2621, 2641, 2660, 3651, or permission of instructor.

4671 Materials and Processes (3) Organic and inorganic materials and processes used to produce finished products. Content, curriculum and techniques of laboratory operation. Prereq: permission of instructor.

4682 Power and Energy (3) Development, control, transmission, conversion, interrelationship of power sources; content, curriculum, and techniques of laboratory operation. Prereq: permission of instructor.

4690 Visual Communications in Industrial Arts (3) Methods of developing and transmitting ideas and information as related to industry and society. Content, curriculum and techniques of laboratory operation. Prereq: permission of instructor.

4691 Course Construction in Industrial Arts (3) Advanced work in the selection and arrangement of course content. Emphasis upon instructional objectives, project selection and informational arrangements and evaluation. Prereq: permission of instructor.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>5110-20-30</td>
<td>Administration and Supervision of Industrial Education</td>
<td>3, 3, 3</td>
</tr>
<tr>
<td>5140</td>
<td>Organization and Operation of Area Vocational-Technical Schools</td>
<td>3</td>
</tr>
<tr>
<td>5210-20-30</td>
<td>Special Problems in Industrial Education</td>
<td>3, 3, 3</td>
</tr>
<tr>
<td>5310</td>
<td>Methods of Research in Industrial Education</td>
<td>3</td>
</tr>
<tr>
<td>5410</td>
<td>Improving Teachers in Service</td>
<td>3</td>
</tr>
<tr>
<td>5420</td>
<td>Advisory Committees and Apprentice Training</td>
<td>3</td>
</tr>
<tr>
<td>5430</td>
<td>Vocational School Administration and Management</td>
<td>3</td>
</tr>
<tr>
<td>5440</td>
<td>Advanced Methods of Teaching Skills and Technical Information</td>
<td>3</td>
</tr>
<tr>
<td>5510-20-30</td>
<td>Seminar in Industrial Technical Education</td>
<td>3, 3, 3</td>
</tr>
<tr>
<td>5540</td>
<td>New Developments in Industrial Technical Education</td>
<td>3</td>
</tr>
</tbody>
</table>
College of Engineering

Fred N. Peebles, Dean
William K. Stair, Associate Dean
William A. Miller, Assistant Dean

The engineer applies mathematical and scientific knowledge in planning economical ways of providing materials and energy in forms that are useful to humankind. In today's technology-based society, everyone feels the effects of the engineer's plans and decisions. Hence, there is a continuing and urgent need for engineering graduates who possess a thorough understanding of mathematical and scientific principles, who can apply these principles to the solution of practical problems, and who can view the solutions in their overall social perspective so that the actions that they recommend will be truly beneficial. It is the purpose of the College of Engineering to educate men and women to the high levels of technical competence and social understanding that will enable them to fulfill their responsibilities as professional engineers.

Graduates of the B.S. curricula offered by the College may enter directly a position in industry, government, or private practice or may pursue advanced study in graduate school. Their professional activities include research, development, design, operations analysis, construction, production supervision, and technical sales. Many practice their profession in Tennessee; but engineering knows no geographical bounds, and graduates of the College serve throughout the nation and in other countries as well.

The College of Engineering had its beginnings early in the history of the University when surveying was introduced into the curriculum in 1838. In 1877 civil engineering was first recognized as a curriculum. The first mechanical course appeared in about 1847; other mechanical courses followed, and in 1877 this body of studies was designated as mechanical engineering. By 1877 mining had found a place in the University, but it was later dropped. Electrical engineering appeared in about 1896, when a Professor of Physics and Electrical Engineering was appointed. Although metallurgy was announced in the catalog as early as 1888, it was dormant until it was revived in the Department of Chemical Engineering shortly after 1940. A separate degree in metallurgical engineering was authorized in 1957. Although the rudiments of chemical engineering appeared in the form of industrial chemistry shortly after 1900, a full chemical engineering program and a department were not established until 1936. Industrial engineering was introduced in 1940, was dropped for a time during the war years, and was reinstated in 1947.

Nuclear engineering was established as a separate curriculum in 1957 in response to the rapidly increasing demand for engineers with a knowledge of nuclear phenomena. Engineering physics, a program operated jointly with the physics department, first appeared as an engineering curriculum in about 1942. Curricula in aerospace engineering and engineering mechanics were added in 1966, and a curriculum in engineering science was added in 1967.

The first Dean of the College of Engineering, Professor Charles E. Ferris, was appointed in 1912. Prior to that time the engineering programs were organized as a school, with a chairman of the faculty. Other former deans are Nathan W. Dougherty, who served from 1940 to 1956, Armour T. Granger, who served from 1956 to 1965, and Charles H. Weaver, who served from 1965 to 1968.

The Cooperative Engineering Program was established at The University of Tennessee in 1926. This institution was one of the early pioneers in this valuable type of education, which originated at the University of Cincinnati in 1905. The Cooperative Engineering Scholarship Program was formally established in 1957, with emphasis on participation by students of superior ability. A conventional cooperative program, open essentially to all students in good standing in the College of Engineering, was re-established in 1967.

The Engineering Experiment Station was established in 1922.

The College of Engineering has ten major undergraduate curricula in which a student may specialize: aerospace, chemical, civil, electrical, industrial, mechanical, metallurgical, and nuclear engineering, engineering physics and engineering science.

Agricultural engineering is taught in the College of Agriculture with facilities located on the Agricultural Campus. The agricultural engineering curriculum is offered cooperatively by the College of Agriculture and the College of Engineering. Details of the curriculum may be found in the College of Agriculture section of this catalog.

Facilities

The College of Engineering is housed in Ferris, Estabrook, Perkins, Dougherty and Berry Halls, and the Nuclear Engineering Building, located on the southeastern end of the campus.

Ferris Hall. This building houses the offices, laboratories, and shops of the electrical engineering department and the Water Resources Laboratory. There is also an auditorium with a seating capacity of about 300 persons, and a remote input/output terminal connecting with The University of
Tennessee Computing Center.

Estabrook Hall. Some operations of the Departments of Civil Engineering and Engineering Science and Mechanics, and of the Engineering Experiment Station are carried on in Estabrook Hall.

Perkins Hall. This building houses the Departments of Civil Engineering, Engineering Science and Mechanics, Industrial Engineering, and the Office of the Dean of the College of Engineering. The building contains laboratories, drafting rooms, and a small auditorium with a capacity of about 80 persons.

Nuclear Engineering Building. This building houses operations of the nuclear engineering department and it contains laboratories and equipment for monitoring, counting, and investigating various nuclear phenomena; it also houses subcritical reactors.

Nathan W. Dougherty Engineering Building. This building, the most recent and largest of the engineering buildings, houses the Departments of Chemical and Metallurgical Engineering, Mechanical and Aerospace Engineering. In addition to classroom and instructional laboratories, it provides modern facilities for various types of research.

Berry Hall. This building is used by the Department of Civil Engineering and the Engineering Experiment Station.

Tau Beta Pi National Headquarters

The College of Engineering of The University of Tennessee is honored to have the National Headquarters of Tau Beta Pi, the National Engineering Honor Society, housed on its campus. This honor was earned in part through the untiring efforts of R.C. "Red" Matthews, who served as Secretary-Treasurer for the organization from 1905 to 1947. The suite of offices, located in Dougherty Hall, is occupied by Mr. R.H. Nagel, Secretary-Treasurer, and his staff.

Chi Epsilon National Headquarters

The College of Engineering of The University of Tennessee is also honored to have the National Headquarters of Chi Epsilon, the National Civil Engineering Honor Society, located in Perkins Hall. Chi Epsilon was founded in 1922. Dexter C. Jameson, Jr., associate professor of civil engineering, was elected to serve as the first Executive Secretary of Chi Epsilon in 1972.

Cooperative Engineering Programs

COOPERATIVE ENGINEERING SCHOLARSHIP PROGRAM

The Engineering Scholarship Program is rich in honors, opportunities, experience, and, therefore, in educational value. The program was developed during the early 1950's and was formalized and given its present form in 1968. The program is open only to those students who have demonstrated marked superiority in academic work, and in recent years very few have been admitted whose scholastic average has been significantly less than B. In addition the student must maintain academic and work records at levels that are consistent with a scholarship program of this type in order to remain in the program. Companies participating in this program have a high degree of assurance that cooperative students sent to them will be successful in their program. Admission to this program is at the end of the second or third quarter of the freshman year.

A brochure describing in detail all of the principles governing this program may be obtained from the Office of Cooperative Engineering Programs of the College of Engineering.

COOPERATIVE ENGINEERING PROGRAM

The five-year Cooperative Engineering Program is offered to students in the College of Engineering in order to provide a superior engineering education that includes the opportunity to combine significant experience in industry with academic preparation.

Cooperative work assignments differ from pastime or summer employment in that they involve regularly scheduled cycles of full-time academic quarters alternated with full-time work quarters—usually seven, a minimum of five—in career-related, planned assignments of progressively increasing complexity and responsibility. In exposing the student in this manner to the world of work, the College of Engineering and the facilities of industry join together to offer a broader and richer preparation for post-graduate employment and for life in general than can be provided by a conventional academic program alone. This experience in an industrial and professional environment contributes to the student's maturity, increases the scope of acquaintances and concepts, and enables the student to define more clearly educational and career interests and objectives. Some of the experience received is at a sub-professional level not available to an engineer after graduation, yet is of great significance in total education and effectiveness.

Admission to the Cooperative Engineering Program is open to any student in the College of Engineering (or majoring in agricultural engineering in the College of Agriculture) who is in good standing, whose record at the University indicates reliability and dependability, and who is acceptable to a co-op employer. In general work periods begin at the end of the second or third quarter of the freshman year and continue for seven alternating work cycles. Applicants must be able to schedule a minimum of five such cycles before the beginning of their senior work in order to qualify for co-op placement.

Academic schedules for co-op students are shown elsewhere in this section. A brochure with further details may be obtained from the Office of the Coordinator, Cooperative Engineering Program, College of Engineering.

Binary Program

A binary program in engineering education is offered at The University of Tennessee. The College of Engineering has agreements with a number of liberal arts colleges to conduct a five-year program, three years of which will be given at the liberal arts college and the last two years at The University of Tennessee in engineering. At the end of the fifth year, the College of Engineering will give the degree of Bachelor of Science in one of the branches of engineering.

Institutions cooperating with The University of Tennessee in offering this Liberal Arts-Engineering 3-2 Binary Plan include:

- Belmont College, Nashville, Tennessee
- Bethel College, McKenzie, Tennessee
- Carson-Newman College, Jefferson City, Tennessee
- David Lipscomb College, Nashville, Tennessee
- East Tennessee State University, Johnson City, Tennessee
- King College, Bristol, Tennessee
- Knoxville College, Knoxville, Tennessee
- Maryville College, Maryville, Tennessee
- Middle Tennessee State University, Murfreesboro, Tennessee
- Tennessee Wesleyan College, Athens, Tennessee
- Union University, Jackson, Tennessee

Questions about courses to be taken in preparation for transfer to The University of Tennessee may be directed to the Dean of Engineering.

Graduate Program

GENERAL

Graduate programs leading to the degree of Master of Science are offered in all areas of study, and the degree of Doctor of Philosophy is offered in seven major subjects: aerospace engineering, chemical engineering, electrical engineering, mechanical engineering, metallurgical engineering, and nuclear engineering. A Master of Engineering degree focusing on engineering design and professional practice is offered in aerospace, civil, electrical, environmental, industrial, mechanical, and nuclear engineering. Information concerning graduate programs is given in the Graduate School Catalog.

Masters of Science Program in ENGINEERING ADMINISTRATION

A program leading to the degree of Master of Science in Engineering Administration is offered with the aim of providing education for graduate engineers in the organization and direction of work in engineering functions, at a level which requires understanding of such areas as marketing, finance, and industrial relations. It is emphasized that this is an engineering program, directed toward preparing individuals for management positions in construction, design, development, manufacturing, etc., where both technical and non-technical factors exert significant influence on the success of a given activity. The program does not provide the opportunity for in-depth study of any of the traditional areas of business administration, and students with such interests are advised to consider graduate work in the College of Business Administration. Policy direction and administration of the program are provided by an Engineering Administration Committee, consisting of representatives from participating departments in the College of Engineering and Business Administration, and a chairman appointed by the Dean of Engineering. Further information is provided in the Graduate School Catalog.
Graduate Program at the UT Space Institute

At the University of Tennessee Space Institute near Tullahoma, graduate level courses are offered in engineering fields such as aerospace, electrical, and mechanical engineering, and in mathematics and physics. Current programs lead to the M.S. and Ph.D. degrees. Many members of the faculty of the Space Institute are also members of the faculty of the College of Engineering.

Engineering Experiment Station

F. M. Peebles, Director
William K. Stair, Associate Director

The management of the Engineering Experiment Station is vested in the President of the University, the Dean of Engineering, the Director, and the Associate Director. An advisory committee consisting of the heads of the departments of the College of Engineering and the heads of departments in allied scientific fields may assist in determining policy and procedures. Members of the faculty of the College of Engineering are available for consultation and advice in technical matters. The Station is organized to conduct research underlying engineering practice, and to aid in the development of the state's resources and industries inssofar as funds available will permit. Inquiries from industries concerning technical questions which interest them are welcomed. The Station may also make special arrangements with any person or company to study any technical question within the capacity of its resources, and to report the results exclusively to the company requesting the study. In such case, the whole expense will be carried by the parties requesting the investigation.

Bulletins are published from time to time giving the results of various investigations. Upon request, unpublished results of current studies are made available to interested parties.

Curricula in Engineering

NATIONAL ACCREDITATION

Since 1936 engineering programs at institutions of higher learning have been accredited by the Engineers Council for Professional Development, an organization formed by many engineering societies. Currently accredited engineering curricula at UTK include aerospace, agricultural, chemical, civil, electrical, engineering science, industrial, mechanical, metallurgical, and nuclear. The advanced professional programs are also accredited in civil, electrical, environmental, mechanical, and nuclear engineering.

Inspection Trip. Each candidate for graduation majoring in aerospace, mechanical, chemical, or metallurgical engineering must participate in inspection trips scheduled by the major department.

Transfer Credit. Every attempt will be made to give maximum credit for courses taken elsewhere and transferred to the College of Engineering. Discussions concerning the evaluation of transfer credits should be conducted with the head of the department into which the student proposes to transfer.

Program for Second B.S. Degree. Upon approval by the Dean of Engineering and the Committee on Degrees of a program of study recommended by the major engineering department, a student who already holds a bachelor's degree may obtain the appropriate first degree in engineering upon completion of a minimum of 45 quarter hours credit. The prevailing University regulations on residence and quality point averages shall apply.

Satisfactory/No Credit Courses. An undergraduate engineering student may count toward a degree up to 12 quarter hours obtained by Satisfactory/No Credit grading. Such courses must be suitable for humanities-social (non-technical) elective credit in engineering.

Humanities and Social Studies Electives. The College of Engineering assumes an obligation to include in each of the engineering curricula a means whereby students gain greater insight into their interaction with society, both personally and professionally. For this purpose, a part of each engineering curriculum is devoted to humanities and social studies electives. Broadly stated, these electives serve a three-fold need: to provide an expanded sensitivity to the human aspects of the practice of engineering; to enrich the student's knowledge of the world in which he or she lives—its culture, behavior patterns, history and governance; and to provide a basis for the appreciation of and the ability to deal with complex interactions between technology and society in the contemporary world. An awareness of this interaction is becoming progressively more significant. Future engineers are now working with new constraints that demand a consciousness of the social and political implications of their work. They are interacting more with the public in explaining their work as the public demands greater participation in the decision-making process concerning the utilization of technology. Because of the significance of this technology-society interaction, engineering students are encouraged to seriously consider selecting electives in this area.

Students are urged to plan a non-technical electives program which will enhance their own interests and objectives. It is recognized that, just as engineers show individual preference for concentration in one of the areas of engineering, they differ in their interests in the many areas of the humanities and social sciences. However, considerable personal satisfaction results if subject areas outside one's own discipline can be pursued with sufficient depth in terms of courses to permit a reasonable level of confidence in the comprehension of the selected areas. In order to increase the effectiveness of this interest and to meet accreditation guidelines, the Humanities and Social Studies Electives Committee of the College of Engineering provides a list of approved courses in the form of thirteen coherent groups of courses identified in three broad areas as follows:

Area I. Human, Economic, and Political Relationships to Engineering
A. Governance and Political Science
B. Economics
C. Sociology and Psychology

Area II. Society—Its Culture, History, and Literature
A. Fine Arts
B. American Culture
C. History
D. Literature
E. Anthropology

Area III. Technology and Society
A. Human Habitats
B. Technology Assessment
C. Communication
D. Resources

Courses in the list which follow are selected by the Committee with revisions as course offerings and needs change. They are recommended as satisfying the non-technical (humanistic-social) electives requirement in the various curricula of the College. However, the structure and permissible courses of the non-technical electives content of each engineering curriculum is established by the respective departments. Therefore, individual departments may delete courses from this list, require certain courses, or require selection of courses from specific subgroups.

Students should consult their departments for any restrictions.

It is recognized that individual students may desire to take courses not on the approved list. Those students should discuss their interests and desires with their academic adviser prior to registering for elective courses. Also the catalog may state prerequisites for upper division courses in the list. In such cases, students are encouraged to consult the instructor in the particular course, since prerequisites might be waived. With respect to students deviations from this list are handled by means of a substitution sheet which originates with the adviser.

ELECTIVE OPTIONS IN HUMANITIES AND SOCIAL STUDIES

Area I. Human, Economic, and Political Relationships to Engineering

1A. Governance and Political Science
   Business Law 4110
   Economics 3340
   Geography 3610
   History 3795, 4311-21, 4370, 4380
   Political Science 2510-20, 3545-48, 3557, 3630, 3710-20-30, 3801-02-03-04, 4535-36, 4540-50, 4580-90, 4665-66
   Sociology 3030, 4320, 4330, 4530

1B. Economics
   Economics 2110-20-30, 2118-28-38, 3120, 3220, 4240
   Geography 2110-20-30, 3410, 4610
   Geology 2310
   Industrial Engineering 4810
   Industrial Management 4320

1C. Sociology and Psychology
   Geography 2000, 2400, 3860
   Journalism 4410
   Psychology 2500, 3120, 3220, 3430,
Sociology 4110, 4330, 4610
University Studies 3010, 4100

IIIC. Communication
Broadcasting 3650 or
Journalism 2210
Journalism 3110, 3710, 3720, 4410
Philosophy 2510-20
Psychology 3430

Sociology 3010
Speech 2311, 2331, 3011, 3021

HID. Resources
Economics 4290

1Environmental Engineering 3000
Forestry 3730
Geography 2110-20-30, 3490
Geology 2310

1Nuclear Engineering 3040
University Studies 3010, 4110

*No more than two courses (6-8 credit hours) carrying engineering college course numbers may be used to satisfy the non-technical electives requirement.

Technical Electives. Technical electives are to be selected with the advice and approval of the student's major department. In some of the curriculum tabulations a choice of such electives is indicated, and regulations in regard to their selection are stated.

The Voluntary ROTC Program. Engineering students may participate in the ROTC Program. Advanced ROTC courses (3000 and 4000 series) may be counted as technical elective credit toward an engineering degree up to a total of nine (9) quarter hours. No ROTC course can be used as a humanistic-social elective. Individual departments determine the appropriate substitutions. Although every effort is made to accommodate engineering students in the ROTC Program, only the 9 hours described above may count towards the degree.

Approval of Electives and Substitutions. Not later than the beginning of the third quarter prior to anticipated graduation, each student shall discuss with an adviser the status of the program of study. Any necessary additions to or substitutions in the program, or electives requiring special approval, shall be cleared in written form at that time, and it is each student's responsibility to see that all necessary approvals are secured.

CURRICULA, TABULAR VIEW

In the following pages are given the course requirements for the various engineering curricula. With no deficiencies in entrance requirements and with careful scheduling of courses, students should complete the regular curricula in four academic years, or the cooperative curricula in five years.

In the following tabulations, the numbers immediately following the names of the courses refer to the description of the courses under "Departments of Instruction." The numbers in the columns indicate the number of quarter hours of credit applicable to each course. Non-technical electives are normally the same as humanities-social studies electives.
### Aerospace Engineering

<table>
<thead>
<tr>
<th>Program</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
</tr>
<tr>
<td>Math 1840-50-60</td>
<td>1 III II</td>
</tr>
<tr>
<td>English 1510-20</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Graphics 1310-20-30</td>
<td>2 2 2</td>
</tr>
<tr>
<td>Basic Eng. 3110-20-30</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Basic Eng. 1410</td>
<td>- 2</td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
</tr>
<tr>
<td>Aero. Engr. 2040</td>
<td>1</td>
</tr>
<tr>
<td>Math 2840-50-60</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Physics 2310-20-30</td>
<td>3 3 3</td>
</tr>
<tr>
<td>Engr. Sci. &amp; Mech. 3311, 3700</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Met. Engr. 2110</td>
<td>- 3</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>3</td>
</tr>
<tr>
<td>Computer Science 3150</td>
<td>3</td>
</tr>
<tr>
<td><em>Humanities/Social Studies Electives</em></td>
<td>- 3</td>
</tr>
</tbody>
</table>

- Required for pre-medical, pre-dental, and pre-veterinary medicine programs.
- Humanities/Social Studies courses approved by the Department.
- Appropriate courses in the College of Engineering approved by the Department.
- Courses in mathematics, statistics, natural science, or engineering approved by the Department.

### Chemical Engineering

<table>
<thead>
<tr>
<th>Program</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
</tr>
<tr>
<td>Math 1840-50-60</td>
<td>4 4 4</td>
</tr>
<tr>
<td>English 1510-20</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Graphics 1310-20-30</td>
<td>2 2 2</td>
</tr>
<tr>
<td>Basic Eng. 3130-20-30</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Basic Eng. 1410</td>
<td>- 2</td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
</tr>
<tr>
<td>Chemist. Engr. 2010-20-30</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Chemist. Engr. 2011</td>
<td>- 4</td>
</tr>
<tr>
<td>Chem. Engr. 3410</td>
<td>3 3 3</td>
</tr>
<tr>
<td>Chem. Engr. 3440, 4420</td>
<td>3 3 3</td>
</tr>
<tr>
<td>Mech. Engr. 3410</td>
<td>- 3</td>
</tr>
<tr>
<td><em>Humanities/Social Studies Electives</em></td>
<td>- 3</td>
</tr>
</tbody>
</table>

- Humanities/Social Sciences courses approved by the department.
- *Math/Science courses approved by the department.
- Technical Electives must be approved by the student's advisor.

### Biomedical Engineering

### Civil Engineering

<table>
<thead>
<tr>
<th>Program</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
</tr>
<tr>
<td>Math 1840-50-60</td>
<td>4 4 4</td>
</tr>
<tr>
<td>English 1510-20</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Graphics 1310-20-30</td>
<td>2 2 2</td>
</tr>
<tr>
<td>Basic Eng. 3130-20-30</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Basic Eng. 1410</td>
<td>- 2</td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
</tr>
<tr>
<td>Chemist. Engr. 2010-20-30</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Chemist. Engr. 2011</td>
<td>- 4</td>
</tr>
<tr>
<td>Chem. Engr. 3410</td>
<td>3 3 3</td>
</tr>
<tr>
<td>Chem. Engr. 3440, 4420</td>
<td>3 3 3</td>
</tr>
<tr>
<td>Mech. Engr. 3410</td>
<td>- 3</td>
</tr>
<tr>
<td><em>Humanities/Social Studies Electives</em></td>
<td>- 3</td>
</tr>
</tbody>
</table>

- *Not required in the cooperative program.
- A minimum of one-half (12 credit hours) of the non-technical electives must be taken from a single group under one of the three areas of the Humanities and Social Studies electives.

### Electrical Engineering

<table>
<thead>
<tr>
<th>Program</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
</tr>
<tr>
<td>Math 1840-50-60</td>
<td>4 4 4</td>
</tr>
<tr>
<td>English 1510-20</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Graphics 1310-20-30</td>
<td>2 2 2</td>
</tr>
<tr>
<td>Basic Eng. 3130-20-30</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Basic Eng. 1410</td>
<td>- 2</td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
</tr>
<tr>
<td>Math 1840-50-60</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Physics 2310-20-30</td>
<td>3 3 3</td>
</tr>
<tr>
<td>Eng. Engr. 3110-20-30</td>
<td>3 3 3</td>
</tr>
<tr>
<td>Eng. Sci. &amp; Mech. 3710 or 3710</td>
<td>3 3 3</td>
</tr>
</tbody>
</table>
| *Not required in the cooperative program.
- A minimum of one-half (12 credit hours) of the non-technical electives must be taken from a single group under one of the three areas of the Humanities and Social Studies electives.

During the third quarter of the junior year the student, in consultation with the advisor, should choose one of the following areas of interest. Courses marked with footnote 1 may be replaced by other courses approved by the student's area advisor.

### Agricultural Engineering

(See College of Agriculture Section.)

### Biomedical Engineering

Available in Engineering Science Degree Program

<table>
<thead>
<tr>
<th>Program</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
</tr>
<tr>
<td>See Basic Curriculum,</td>
<td>18 18 16</td>
</tr>
<tr>
<td>Engineering Science</td>
<td></td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
</tr>
<tr>
<td>Mathematics 2840-50-60</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Physics 2310-20-30</td>
<td>3 3 3</td>
</tr>
<tr>
<td>Biology 1210-20 and 3120</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Engr. Sci. &amp; Mech. 3410, 3700, 3110</td>
<td>4 4 3</td>
</tr>
<tr>
<td><em>Humanities/Social Studies Electives</em></td>
<td>4 4 4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Program</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
</tr>
<tr>
<td>Chemistry 1211-21-31, 3129-29-39</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Elect. Engr. 3111-10-30</td>
<td>3 3 3</td>
</tr>
<tr>
<td>Chemist. Engr. 2010-30</td>
<td>4 4 4</td>
</tr>
<tr>
<td>Engr. Sci. &amp; Mech. 3311</td>
<td>- 3</td>
</tr>
<tr>
<td>Computer Science 3150</td>
<td>- 4</td>
</tr>
<tr>
<td>Mech. Engr. 3440 and 3540</td>
<td>-</td>
</tr>
<tr>
<td>Mathematics Elective</td>
<td>- 3</td>
</tr>
<tr>
<td>Engr. Sci. &amp; Mech. 3120 or 3320</td>
<td>- 4</td>
</tr>
<tr>
<td><em>Humanities/Social Studies Electives</em></td>
<td>- 4</td>
</tr>
</tbody>
</table>

**NOTES:**
- *Not required in the cooperative program.
- A minimum of one-half (12 credit hours) of the non-technical electives must be taken from a single group under one of the three areas of the Humanities and Social Studies electives.

### Civil Engineering

**NOTES:**
- *Not required in the cooperative program.
- A minimum of one-half (12 credit hours) of the non-technical electives must be taken from a single group under one of the three areas of the Humanities and Social Studies electives.
### SENIOR YEAR—AREAS OF INTEREST

<table>
<thead>
<tr>
<th>Electromagnetic Fields and Communications</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elect. Engr. 4410</td>
<td>3</td>
</tr>
<tr>
<td>Elect. Engr. 4420</td>
<td>3</td>
</tr>
<tr>
<td>Elect. Engr. 4430</td>
<td>3</td>
</tr>
<tr>
<td>Elect. Engr. 4440</td>
<td>3</td>
</tr>
<tr>
<td>Elect. Engr. 4450</td>
<td>3</td>
</tr>
<tr>
<td>Elect. Engr. 4460</td>
<td>3</td>
</tr>
<tr>
<td>Elect. Engr. 4470</td>
<td>3</td>
</tr>
<tr>
<td>Elect. Engr. 4480</td>
<td>3</td>
</tr>
<tr>
<td>Elect. Engr. or Math Electives</td>
<td>4</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>4</td>
</tr>
<tr>
<td>Non-Technical Electives</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAL: 202 Hours</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Energy Conversion and Power Systems</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elec. Engr. 4410-20-30</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4430</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4460</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4470</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4480</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4490</td>
<td>3</td>
</tr>
<tr>
<td>Nuclear Engr. 4410</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4500</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4610</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>4</td>
</tr>
<tr>
<td>Non-Technical Electives</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAL: 202 hours</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Plasma and Electro-Optics Engineering</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elec. Engr. 4460, 4470, 4480</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4490, 4500</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>3</td>
</tr>
<tr>
<td>Non-Technical Electives</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAL: 202 hours</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Systems and Networks</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elec. Engr. 4810</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4820</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4830</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4840</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4850</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4860</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4870</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4880</td>
<td>4</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>4</td>
</tr>
<tr>
<td>Non-Technical Electives</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAL: 202 hours</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Computer Engineering</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elec. Engr. 4460</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4470</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4480</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4490</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4500</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4510</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4520</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. or Math Electives</td>
<td>4</td>
</tr>
<tr>
<td>Non-Technical Electives</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAL: 202 hours</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Electronics and Instrumentation</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elec. Engr. 4680-90, 4700</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4710</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4720</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4730</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4740</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4750</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4760</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4770</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>4</td>
</tr>
<tr>
<td>Non-Technical Electives</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAL: 205 hours</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Bioelectric Option

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology 1210-20-30</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 2230</td>
<td>3</td>
</tr>
<tr>
<td>Elect. Engr. 4660</td>
<td>3</td>
</tr>
<tr>
<td>Zoology 3080-3089</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4850</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4860</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4870</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4880</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4890</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 4890-90</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>3</td>
</tr>
<tr>
<td>Non-Technical Electives</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAL: 205 hours</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Course will usually be required, however, a student major adviser may substitute another 4000-level electrical engineering course without filing a Substitution Form. A student must take any three of the first six courses (top two lines)—the remaining three of these courses may be any 4000-level or higher course in electrical engineering.**

### Engineering Physics

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>1</td>
</tr>
<tr>
<td>Math 1840-50-60</td>
<td>4</td>
</tr>
<tr>
<td>English 1510-20</td>
<td>4</td>
</tr>
<tr>
<td>*Non-Technical Elective</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>3</td>
</tr>
<tr>
<td><strong>TOTAL: 195 hours</strong></td>
<td></td>
</tr>
</tbody>
</table>

**1Humanities/Social Studies Electives**

### Industrial Engineering

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>1</td>
</tr>
<tr>
<td>Math 1840-50-60</td>
<td>4</td>
</tr>
<tr>
<td>English 1510-20</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>4</td>
</tr>
<tr>
<td><strong>TOTAL: 188 or 199 hours</strong></td>
<td></td>
</tr>
</tbody>
</table>

**1To be taken from Liberal Arts trai of Language, Literature and Arts, or History and Society, with at least 16 hours from courses approved for Language, Literature and Arts.**

**2The Honors sequence (Physics 1318-28-38) is recommended for qualified majors.**

**3To be taken in College of Engineering.**

**4From Physics 3510-20-30, 3610-20-30, 4510-20-30, 4520-50.**

**5From engineering, mathematics, computer science, physics, chemistry, or astronomy.**

**6Students not planning to pursue graduate study may substitute Physics 3710-20-30.**


### Engineering Science

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td>1</td>
</tr>
<tr>
<td>Basic Engr. 1310-20-30</td>
<td>4</td>
</tr>
<tr>
<td>Mathematics 1840-50-60</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>4</td>
</tr>
<tr>
<td>English 1510-20</td>
<td>4</td>
</tr>
<tr>
<td>Graphics 1310-20-30</td>
<td>4</td>
</tr>
<tr>
<td>Basic Engr. 1410</td>
<td>2</td>
</tr>
<tr>
<td><strong>TOTAL: 204 hours</strong></td>
<td></td>
</tr>
</tbody>
</table>
### Mechanical Engineering

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 1840-50-60</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Math 1890-60</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>English 1510-20</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Graphics 1310-20-30</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Basic Eng. 1310-20-30</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Basic Eng. 1410</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

### Sophomore

<table>
<thead>
<tr>
<th>Mech. Engr. 2040</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 2840-50-60</td>
<td>4</td>
</tr>
<tr>
<td>Physics 2310-20-30</td>
<td>3</td>
</tr>
<tr>
<td>Eng. Sci. &amp; Mech. 3311, 3700</td>
<td>4</td>
</tr>
<tr>
<td>Met. Engr. 2110</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>3</td>
</tr>
<tr>
<td>Computer Science 3150</td>
<td>3</td>
</tr>
</tbody>
</table>

### Junior

<table>
<thead>
<tr>
<th>Mech. Engr. 3311, 3321-20</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mech. Engr. 3610-20-30</td>
<td>3</td>
</tr>
<tr>
<td>Mech. Engr. 3040, 3650-60</td>
<td>4</td>
</tr>
<tr>
<td>Mech. Engr. 3910, 3440, 4420</td>
<td>4</td>
</tr>
<tr>
<td>Aero. Engr. 3511</td>
<td>3</td>
</tr>
<tr>
<td>Mech. Engr. 3410</td>
<td>3</td>
</tr>
<tr>
<td>Eng. Sci. &amp; Mech. 3320</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 3110-20-30</td>
<td>3</td>
</tr>
</tbody>
</table>

### Senior

<table>
<thead>
<tr>
<th>Mech. Engr. 4310-20</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mech. Engr. 4510</td>
<td>3</td>
</tr>
<tr>
<td>Mech. Engr. 4471-91</td>
<td>3</td>
</tr>
<tr>
<td>Mech. Engr. 4670-80</td>
<td>3</td>
</tr>
<tr>
<td>Mech. Engr. Electives</td>
<td>3</td>
</tr>
<tr>
<td>Technical Electives</td>
<td>3</td>
</tr>
</tbody>
</table>

**TOTAL: 202 hours**

1. Humanities/Social Studies Electives: 3 hours (minimum of 20 hours required).
2. Mechanical Eng. Electives: Senior courses in mechanical engineering are not otherwise required.
3. Technical Electives: Upper-division courses in engineering, mathematics, or physics as approved by the department.

### Nuclear Engineering

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics 1640-50-60</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Graphics 1310-20-30</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Basic Eng. 1310-20-30</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Basic Eng. 1410</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

### Sophomore

<table>
<thead>
<tr>
<th>Mech. Engr. 2010-20-30</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. Engr. 2011</td>
<td>4</td>
</tr>
<tr>
<td>Chem. Engr. 3410</td>
<td>4</td>
</tr>
<tr>
<td>Math 2840-50-60</td>
<td>4</td>
</tr>
<tr>
<td>Eng. Sci. &amp; Mech. 2720</td>
<td>4</td>
</tr>
<tr>
<td>Elect. Eng. Electives</td>
<td>4</td>
</tr>
<tr>
<td>Physics 2310-20</td>
<td>4</td>
</tr>
</tbody>
</table>

**TOTAL: 199 hours**

1. Not required in the cooperative program.
2. A minimum of one-half (12 quarter hours) of the non-technical electives must be taken from a single group under one of the three areas of the Humanities and Social Studies electives.

### Metallurgical Engineering

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics 1840-50-60</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Graphics 1310-20-30</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Basic Eng. 1310-20-30</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Basic Eng. 1410</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

### Sophomore

<table>
<thead>
<tr>
<th>Chem. Engr. 2010-20-30</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem. Engr. 2011</td>
<td>4</td>
</tr>
<tr>
<td>Chem. Engr. 3410</td>
<td>4</td>
</tr>
<tr>
<td>Math 2840-50-60</td>
<td>4</td>
</tr>
<tr>
<td>Eng. Sci. &amp; Mech. 2720</td>
<td>4</td>
</tr>
<tr>
<td>Elect. Eng. Electives</td>
<td>4</td>
</tr>
<tr>
<td>Physics 2310-20</td>
<td>4</td>
</tr>
</tbody>
</table>

**TOTAL: 195 hours**
### Cooperative Curriculum in Aerospace Engineering

**Students Working Spring and Fall Quarters—Group A**

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST</td>
<td>Math 1840....4</td>
<td>Math 1850....4</td>
<td>Math 1860....4</td>
<td>Math 1870....4</td>
</tr>
<tr>
<td>YEAR</td>
<td>English 1510..4</td>
<td>English 1520..4</td>
<td>Chem. 1130....4</td>
<td>Chem. 1140....4</td>
</tr>
<tr>
<td></td>
<td>Chem. 1110....4</td>
<td>Chem. 1120....4</td>
<td>Graphics 1330..2</td>
<td>Basic Engr. 1330..2</td>
</tr>
<tr>
<td></td>
<td>Graphics 1310..2</td>
<td>Basic Engr. 1320..4</td>
<td>Basic Engr. 1340..2</td>
<td>Basic Engr. 1350..2</td>
</tr>
<tr>
<td>SECOND</td>
<td>Aero Engr. 2040..1</td>
<td>Aero Engr. 2050..4</td>
<td>Aero Engr. 2060..4</td>
<td>Aero Engr. 2070..4</td>
</tr>
<tr>
<td>YEAR</td>
<td>WORK</td>
<td>WORK</td>
<td>WORK</td>
<td>WORK</td>
</tr>
<tr>
<td></td>
<td>Math 2840..4</td>
<td>Physics 2310..3</td>
<td>Econ. 2110..3</td>
<td>&quot;Humanities&quot; Social Stud. Elect.*</td>
</tr>
<tr>
<td></td>
<td>&quot;Humanities&quot; Social Stud. Elect.*</td>
<td>WORK</td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td>THIRD</td>
<td>Math 2860..4</td>
<td>Physics 2330..3</td>
<td>ES &amp; M 3311..4</td>
<td>Aero Engr. 3311..3</td>
</tr>
<tr>
<td>YEAR</td>
<td>WORK</td>
<td>WORK</td>
<td>WORK</td>
<td>Mech. Engr. 3310..3</td>
</tr>
<tr>
<td></td>
<td>&quot;Humanities&quot; Social Stud. Elect.*</td>
<td>WORK</td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aero Engr. 3620..3</td>
<td>Aero Engr. 3630..3</td>
<td>Aero Engr. 3640..3</td>
<td>Aero Engr. 3650..3</td>
</tr>
<tr>
<td>FOURTH</td>
<td>Aero Engr. 4220..3</td>
<td>Aero Engr. 4230..3</td>
<td>Aero Engr. 4240..3</td>
<td>Aero Engr. 4250..3</td>
</tr>
<tr>
<td>YEAR</td>
<td>WORK</td>
<td>WORK</td>
<td>WORK</td>
<td>WORK</td>
</tr>
<tr>
<td></td>
<td>Aero Engr. 4471..3</td>
<td>Aero Engr. 4481..3</td>
<td>Aero Engr. 4491..3</td>
<td>Aero Engr. 4501..3</td>
</tr>
<tr>
<td></td>
<td>Aero Engr. 4310..3</td>
<td>Aero Engr. 4320..3</td>
<td>Aero Engr. 4330..3</td>
<td>Aero Engr. 4340..3</td>
</tr>
<tr>
<td></td>
<td>&quot;Humanities&quot; Social Stud. Elect.*</td>
<td>WORK</td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;Humanities&quot; Social Stud. Elect.*</td>
<td>WORK</td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;Humanities&quot; Social Stud. Elect.*</td>
<td>WORK</td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;Humanities&quot; Social Stud. Elect.*</td>
<td>WORK</td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL: 202 hours</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Students Working Summer and Winter Quarters—Group B

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST</td>
<td>Math 1840....4</td>
<td>Math 1850....4</td>
<td>Math 1860....4</td>
<td>Math 1870....4</td>
</tr>
<tr>
<td>YEAR</td>
<td>English 1510..4</td>
<td>English 1520..4</td>
<td>Chem. 1130....4</td>
<td>Chem. 1140....4</td>
</tr>
<tr>
<td></td>
<td>Chem. 1110....4</td>
<td>Chem. 1120....4</td>
<td>Graphics 1330..2</td>
<td>Basic Engr. 1330..2</td>
</tr>
<tr>
<td></td>
<td>Graphics 1310..2</td>
<td>Basic Engr. 1320..4</td>
<td>Basic Engr. 1340..2</td>
<td>Basic Engr. 1350..2</td>
</tr>
<tr>
<td>SECOND</td>
<td>Aero Engr. 2040..1</td>
<td>Aero Engr. 2050..4</td>
<td>Aero Engr. 2060..4</td>
<td>Aero Engr. 2070..4</td>
</tr>
<tr>
<td>YEAR</td>
<td>WORK</td>
<td>WORK</td>
<td>WORK</td>
<td>WORK</td>
</tr>
<tr>
<td></td>
<td>Math 2840..4</td>
<td>Physics 2310..3</td>
<td>Econ. 2110..3</td>
<td>&quot;Humanities&quot; Social Stud. Elect.*</td>
</tr>
<tr>
<td></td>
<td>&quot;Humanities&quot; Social Stud. Elect.*</td>
<td>WORK</td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td>THIRD</td>
<td>Math 2860..4</td>
<td>Physics 2330..3</td>
<td>ES &amp; M 3311..4</td>
<td>Aero Engr. 3311..3</td>
</tr>
<tr>
<td>YEAR</td>
<td>WORK</td>
<td>WORK</td>
<td>WORK</td>
<td>Mech. Engr. 3310..3</td>
</tr>
<tr>
<td></td>
<td>&quot;Humanities&quot; Social Stud. Elect.*</td>
<td>WORK</td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aero Engr. 3620..3</td>
<td>Aero Engr. 3630..3</td>
<td>Aero Engr. 3640..3</td>
<td>Aero Engr. 3650..3</td>
</tr>
<tr>
<td>FOURTH</td>
<td>Aero Engr. 4220..3</td>
<td>Aero Engr. 4230..3</td>
<td>Aero Engr. 4240..3</td>
<td>Aero Engr. 4250..3</td>
</tr>
<tr>
<td>YEAR</td>
<td>WORK</td>
<td>WORK</td>
<td>WORK</td>
<td>WORK</td>
</tr>
<tr>
<td></td>
<td>Aero Engr. 4471..3</td>
<td>Aero Engr. 4481..3</td>
<td>Aero Engr. 4491..3</td>
<td>Aero Engr. 4501..3</td>
</tr>
<tr>
<td></td>
<td>Aero Engr. 4310..3</td>
<td>Aero Engr. 4320..3</td>
<td>Aero Engr. 4330..3</td>
<td>Aero Engr. 4340..3</td>
</tr>
<tr>
<td></td>
<td>&quot;Humanities&quot; Social Stud. Elect.*</td>
<td>WORK</td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;Humanities&quot; Social Stud. Elect.*</td>
<td>WORK</td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&quot;Humanities&quot; Social Stud. Elect.*</td>
<td>WORK</td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL: 202 hours</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*"Humanities/Social Studies Electives; minimum of 20 hours required.

*A Technical Electives; upper division courses in engineering, mathematics or physical science as approved by the Department.*
## Cooperative Curriculum in Agricultural Engineering
(See College of Agriculture Section)

## Cooperative Curriculum in Chemical Engineering

### Students Working Spring and Fall Quarters — Group A

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST</td>
<td>Mathematics 1840...4</td>
<td>Mathematics 1850...4</td>
<td></td>
<td>Mathematics 1860...4</td>
</tr>
<tr>
<td>YEAR</td>
<td>English 1510...4</td>
<td>English 1520...4</td>
<td></td>
<td>Chemistry 1130...4</td>
</tr>
<tr>
<td></td>
<td>Chemistry 1110...4</td>
<td>Chemistry 1120...4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Graphics 1310.........2</td>
<td>Graphics 1320...........2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Basic Engr. 1310...4</td>
<td>Basic Engr. 1320...4</td>
<td></td>
<td>Basic Engr. 1410...2</td>
</tr>
<tr>
<td>SECOND</td>
<td>Chemet. Engr. 2010.4</td>
<td></td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td>YEAR</td>
<td>WORK</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chemet. Engr. 2140-49 .4</td>
<td>Math 2640...4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>'Non-Tech. Elect.'...4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>THIRD</td>
<td>Chemet. Engr. 2020.4</td>
<td></td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td>YEAR</td>
<td>WORK</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chemet. Engr. 3430..4</td>
<td>Chemet. Engr. 3450..4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chemet. Engr. 4310.1</td>
<td>Chemet. Engr. 4300...4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chemistry 4310...3</td>
<td>Chemistry 4320...3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>'Non-Tech. Elect.'...4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOURTH</td>
<td>Chemet. Engr. 2010.4</td>
<td>Chemet. Engr. 2140-49 .4</td>
<td>WORK</td>
<td>Chemet. Engr. 2020.4</td>
</tr>
<tr>
<td>YEAR</td>
<td>WORK</td>
<td>Math 2640...4</td>
<td></td>
<td>Chemet. Engr. 2030.4</td>
</tr>
<tr>
<td></td>
<td>Chemet. Engr. 3430..4</td>
<td>Chemet. Engr. 4310.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>'Non-Tech. Elect.'...4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIFTH</td>
<td>Chemet. Engr. 2011.0</td>
<td>Chemet. Engr. 4410..3</td>
<td>Chemistry 4420..3</td>
<td>Chemet. Engr. 4420..3</td>
</tr>
<tr>
<td>YEAR</td>
<td>Chemet. Engr. 3620..3</td>
<td>Chemet. Engr. 4630..3</td>
<td>Chemistry 4320..1</td>
<td>Major Electives...3</td>
</tr>
<tr>
<td></td>
<td>Chemet. Engr. 3450..3</td>
<td>Chemet. Engr. 4300...4</td>
<td>Chemet. Engr. 4310..3</td>
<td>'Non-Tech. Elect.'...4</td>
</tr>
<tr>
<td></td>
<td>Chemet. Engr. 4310.1</td>
<td>Met. Engr. 3520...3</td>
<td>Chemistry 4340...3</td>
<td>'Non-Tech. Elect.'...4</td>
</tr>
<tr>
<td></td>
<td>Chemistry 4310...3</td>
<td>'Non-Tech. Elect.'...4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>'Non-Tech. Elect.'...4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TOTAL: 199 Hours

### Students Working Summer and Winter Quarters — Group B

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST</td>
<td>Mathematics 1840...4</td>
<td>Mathematics 1850...4</td>
<td></td>
<td>Mathematics 1860...4</td>
</tr>
<tr>
<td>YEAR</td>
<td>English 1510...4</td>
<td>English 1520...4</td>
<td></td>
<td>Chemistry 1130...4</td>
</tr>
<tr>
<td></td>
<td>Chemistry 1110...4</td>
<td>Chemistry 1120...4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Graphics 1310.........2</td>
<td>Graphics 1320...........2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Basic Engr. 1310...4</td>
<td>Basic Engr. 1320...4</td>
<td></td>
<td>Basic Engr. 1410...2</td>
</tr>
<tr>
<td>SECOND</td>
<td>Chemet. Engr. 2010.4</td>
<td></td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td>YEAR</td>
<td>Chemet. Engr. 2140-49 .4</td>
<td>Math 2640...4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>'Non-Tech. Elect.'...4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>THIRD</td>
<td>ES &amp; M 2720...........3</td>
<td></td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td>YEAR</td>
<td>Chemet. Engr. 3430.4</td>
<td>Chemet. Engr. 3420...4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chemet. Engr. 3420...4</td>
<td>Chemet. Engr. 3410...3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Physics 2310.........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOURTH</td>
<td>Chemet. Engr. 4110...3</td>
<td>Chemet. Engr. 3221-29 .4</td>
<td>WORK</td>
<td>Chemet. Engr. 3440...3</td>
</tr>
<tr>
<td>YEAR</td>
<td>Chemistry 3221-29...4</td>
<td>Elec. Engr. 3120 or</td>
<td></td>
<td>Chemet. Engr. 3610...3</td>
</tr>
<tr>
<td></td>
<td>Elec. Engr. 3120 or</td>
<td>3130</td>
<td>WORK</td>
<td>Chemet. Engr. 3050.4</td>
</tr>
<tr>
<td></td>
<td>3130</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>'Non-Tech. Elect.'...4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FIFTH</td>
<td>Chemet. Engr. 3620..3</td>
<td>Chemet. Engr. 4410..3</td>
<td>Chemistry 4420..3</td>
<td>Chemet. Engr. 4420..3</td>
</tr>
<tr>
<td>YEAR</td>
<td>Chemet. Engr. 3450..3</td>
<td>Chemet. Engr. 4630..3</td>
<td>Chemistry 4320..1</td>
<td>Major Elective...3</td>
</tr>
<tr>
<td></td>
<td>Chemet. Engr. 4310.1</td>
<td>Chemet. Engr. 4300...4</td>
<td>Chemistry 4340...3</td>
<td>'Non-Tech. Elect.'...4</td>
</tr>
<tr>
<td></td>
<td>Chemistry 4310...3</td>
<td>'Non-Tech. Elect.'...4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>'Non-Tech. Elect.'...4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TOTAL: 199 Hours

1 A minimum of one-half (12 quarter hours) of the non-technical electives must be taken from a single group under one of the three areas of the Humanities and Social Studies electives.
### Cooperative Curriculum in Civil Engineering

**Students Working Spring and Fall Quarters—Group A**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRST YEAR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics 1840...4</td>
<td>Mathematics 1850...4</td>
<td>WORK</td>
<td>Mathematics 1860...4</td>
</tr>
<tr>
<td>English 1510...4</td>
<td>English 1520...4</td>
<td>WORK</td>
<td>Chemistry 1130...4</td>
</tr>
<tr>
<td>Chemistry 1110...4</td>
<td>Chemistry 1120...4</td>
<td>WORK</td>
<td>Graphics 1330...2</td>
</tr>
<tr>
<td>Graphics 1310...2</td>
<td>Basic Engr. 1320...4</td>
<td>WORK</td>
<td>Basic Engr. 1330...4</td>
</tr>
<tr>
<td>Basic Engr. 1310...4</td>
<td>Basic Engr. 1320...4</td>
<td>WORK</td>
<td>Basic Engr. 1410...2</td>
</tr>
<tr>
<td><strong>SECOND YEAR</strong></td>
<td>CE 2260...3</td>
<td>CE 2360...3</td>
<td></td>
</tr>
<tr>
<td>WORK</td>
<td>CE 2310...1</td>
<td>Engr. Sci. &amp; Mech. 3310...3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Math 2640...4</td>
<td>WORK</td>
<td>Math 2850...4</td>
</tr>
<tr>
<td></td>
<td>Non-Tech. Elect. 4</td>
<td>WORK</td>
<td>Non-Tech. Elect. 4</td>
</tr>
<tr>
<td><strong>THIRD YEAR</strong></td>
<td>CE 3210...3</td>
<td>CE 3600...3</td>
<td></td>
</tr>
<tr>
<td>WORK</td>
<td>CE 3710...3</td>
<td>WORK</td>
<td>Physics 2310...3</td>
</tr>
<tr>
<td></td>
<td>Engr. Sci. &amp; Mech. 3110...3</td>
<td>WORK</td>
<td>ENVR 3120...3</td>
</tr>
<tr>
<td></td>
<td>Math 2680...4</td>
<td>WORK</td>
<td>Geology 2610...3</td>
</tr>
<tr>
<td></td>
<td>Non-Tech. Elect. 4</td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENVR 4520...3</td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td><strong>FOURTH YEAR</strong></td>
<td>CE 3310...3</td>
<td>CE 4220...3</td>
<td></td>
</tr>
<tr>
<td>WORK</td>
<td>CE 3610...3</td>
<td>WORK</td>
<td>Comp. Sci. 3150...3</td>
</tr>
<tr>
<td></td>
<td>CE 4110...3</td>
<td>WORK</td>
<td>Econ. 2110...3</td>
</tr>
<tr>
<td></td>
<td>CE 3320...1</td>
<td>WORK</td>
<td>EE 3110...3</td>
</tr>
<tr>
<td></td>
<td>ENVR 4520...3</td>
<td>WORK</td>
<td>ME 3110...3</td>
</tr>
<tr>
<td></td>
<td>ENVR 3330...3</td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td><strong>FIFTH YEAR</strong></td>
<td>CE 4430...3</td>
<td>CE 4230...3</td>
<td>TOTAL: 199 Hours</td>
</tr>
<tr>
<td>Non-Tech. Electives 4</td>
<td>Non-Tech. Electives 4</td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td>Tech. Electives 9</td>
<td>Free Elective 3</td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td>Tech. Electives 9</td>
<td>Free Elective 3</td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td>Tech. Electives 9</td>
<td>Free Elective 3</td>
<td>TOTAL: 199 Hours</td>
<td></td>
</tr>
</tbody>
</table>

**Students Working Summer and Winter Quarters—Group B**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRST YEAR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics 1840...4</td>
<td>Mathematics 1850...4</td>
<td>WORK</td>
<td>Mathematics 1860...4</td>
</tr>
<tr>
<td>English 1510...4</td>
<td>English 1520...4</td>
<td>WORK</td>
<td>Chemistry 1130...4</td>
</tr>
<tr>
<td>Chemistry 1110...4</td>
<td>Chemistry 1120...4</td>
<td>WORK</td>
<td>Graphics 1330...2</td>
</tr>
<tr>
<td>Graphics 1310...2</td>
<td>Basic Engr. 1320...4</td>
<td>WORK</td>
<td>Basic Engr. 1330...4</td>
</tr>
<tr>
<td>Basic Engr. 1310...4</td>
<td>Basic Engr. 1320...4</td>
<td>WORK</td>
<td>Basic Engr. 1410...2</td>
</tr>
<tr>
<td><strong>SECOND YEAR</strong></td>
<td>CE 2260...3</td>
<td>CE 2360...3</td>
<td></td>
</tr>
<tr>
<td>Physics 2310...1</td>
<td>CE 2310...1</td>
<td>WORK</td>
<td>Engr. Sci. &amp; Mech. 2720...3</td>
</tr>
<tr>
<td>Engr. Sci. &amp; Mech. 3310...3</td>
<td>WORK</td>
<td>WORK</td>
<td>Math 2850...4</td>
</tr>
<tr>
<td>Math 2640...4</td>
<td>Non-Tech. Elect. 4</td>
<td>WORK</td>
<td>Non-Tech. Elect. 4</td>
</tr>
<tr>
<td>Non-Tech. Elect. 4</td>
<td>ENVR 4520...3</td>
<td>WORK</td>
<td>Physics 2320...3</td>
</tr>
<tr>
<td><strong>THIRD YEAR</strong></td>
<td>CE 2310...1</td>
<td>CE 4410...3</td>
<td></td>
</tr>
<tr>
<td>Math 2860...4</td>
<td>CE 3610...3</td>
<td>WORK</td>
<td>Envr. Engr. 3120...3</td>
</tr>
<tr>
<td>CE 3210...3</td>
<td>CE 4110...3</td>
<td>WORK</td>
<td>Geology 2610...3</td>
</tr>
<tr>
<td>Engr. Sci. &amp; Mech. 3110...3</td>
<td>Envr. Engr. 3300...3</td>
<td>WORK</td>
<td>Envr. Engr. 4520...3</td>
</tr>
<tr>
<td>Envr. Engr. 3000...3</td>
<td>CE 3710...3</td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td><strong>FOURTH YEAR</strong></td>
<td>CE 3310...3</td>
<td>CE 4220...3</td>
<td></td>
</tr>
<tr>
<td>CE 3320...3</td>
<td>CE 3600...3</td>
<td>WORK</td>
<td>Comp. Sci. 3150...3</td>
</tr>
<tr>
<td>CE 3600...3</td>
<td>CE 3610...3</td>
<td>WORK</td>
<td>Econ. 2110...3</td>
</tr>
<tr>
<td>CE 4110...3</td>
<td>CE 4110...3</td>
<td>WORK</td>
<td>EE 3110...3</td>
</tr>
<tr>
<td>Envr. Engr. 3300...3</td>
<td>CE 3710...3</td>
<td>WORK</td>
<td>ME 3110...3</td>
</tr>
<tr>
<td>Non-Tech. Elect. 4</td>
<td>CE 4320...3</td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td>Tech. Electives 9</td>
<td>CE 4330...1</td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td>Math/Sci. Elect. 3</td>
<td>Non-Tech. Elect. 4</td>
<td>TOTAL: 199 Hours</td>
<td></td>
</tr>
<tr>
<td>Tech. Electives 9</td>
<td>Free Elective 3</td>
<td>TOTAL: 199 Hours</td>
<td></td>
</tr>
</tbody>
</table>

*Humanities-Social Studies Courses approved by the department.
Math/Science Courses approved by the department.
Technical Electives must be approved by the student's advisor and the primary and one secondary area must come from the departmental list of approved courses for 15 credits and 6 credits respectively.*
### Cooperative Curriculum in Electrical Engineering

**Students Working Spring and Fall Quarters—Group A**

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 1840</td>
<td>Math 1850</td>
<td></td>
<td>Math 1890</td>
<td>Chemistry 1130</td>
</tr>
<tr>
<td>Chemistry 1110</td>
<td>Chemistry 1120</td>
<td>WORK</td>
<td>Chemistry 1130</td>
<td>WORK</td>
</tr>
<tr>
<td>English 1510</td>
<td>English 1520</td>
<td></td>
<td>Graphs 1330</td>
<td>WORK</td>
</tr>
<tr>
<td>Graphics 1310</td>
<td>Graphics 1320</td>
<td></td>
<td>Basic Engr. 1330</td>
<td>WORK</td>
</tr>
<tr>
<td>Basic Engr. 1310</td>
<td>Basic Engr. 1320</td>
<td>WORK</td>
<td>Basic Engr. 1340</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECOND YEAR</th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 2840</td>
<td></td>
<td>WORK</td>
<td>Math 2850</td>
<td>Physcis 2320</td>
</tr>
<tr>
<td>Physics 2310</td>
<td>EE 2010</td>
<td></td>
<td>EE 2020</td>
<td>Non-Tech. Elect.</td>
</tr>
<tr>
<td>Met. Engr. 2110</td>
<td></td>
<td>WORK</td>
<td>EE 3190</td>
<td></td>
</tr>
<tr>
<td>Non-Tech. Elective</td>
<td></td>
<td></td>
<td>Basic Engr. 3520</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>WORK</td>
<td>Math 3150</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>THIRD YEAR</th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 2860</td>
<td>EE 3820</td>
<td></td>
<td>EE 3830</td>
<td></td>
</tr>
<tr>
<td>EE 2330</td>
<td>EE 3050</td>
<td></td>
<td>EE 3060</td>
<td></td>
</tr>
<tr>
<td>Met. Engr. 3130</td>
<td>EE 3720</td>
<td></td>
<td>EE 3100</td>
<td></td>
</tr>
<tr>
<td>Non-Tech. Elective</td>
<td></td>
<td>WORK</td>
<td>EE 3090</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EE 3180</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EE 3080</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FOURTH YEAR</th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE 3820</td>
<td>EE 3050</td>
<td></td>
<td>EE 3830</td>
<td></td>
</tr>
<tr>
<td>EE 3720</td>
<td>EE 3060</td>
<td></td>
<td>EE 3090</td>
<td></td>
</tr>
<tr>
<td>EE 3180</td>
<td>EE 3100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mech. Engr. 3530</td>
<td>EE 3090</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE 3080</td>
<td></td>
<td>WORK</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FIFTH YEAR</th>
<th>Total</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>See Senior Year Areas of Interest, page 121.</td>
<td>TOTAL: 204-205 Hours</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

### Students Working Summer and Winter Quarters—Group B

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 1840</td>
<td></td>
<td></td>
<td>Math 1660</td>
<td>Chemistry 1130</td>
</tr>
<tr>
<td>Chemistry 1110</td>
<td></td>
<td></td>
<td>Chemistry 1130</td>
<td>WORK</td>
</tr>
<tr>
<td>English 1510</td>
<td></td>
<td></td>
<td>Graphs 1330</td>
<td></td>
</tr>
<tr>
<td>Graphics 1310</td>
<td></td>
<td></td>
<td>Basic Engr. 1330</td>
<td></td>
</tr>
<tr>
<td>Basic Engr. 6310</td>
<td></td>
<td></td>
<td>Basic Engr. 1340</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SECOND YEAR</th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 2840</td>
<td>EE 2330</td>
<td></td>
<td>EE 3810</td>
<td></td>
</tr>
<tr>
<td>EE 2010</td>
<td>EE 3050</td>
<td></td>
<td>EE 3040</td>
<td></td>
</tr>
<tr>
<td>Met. Engr. 2110</td>
<td></td>
<td>WORK</td>
<td>EE 3010</td>
<td></td>
</tr>
<tr>
<td>Non-Tech. Elective</td>
<td></td>
<td></td>
<td>EE 3190</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EE 3180</td>
<td></td>
<td>Basic Engr. 3520</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EE 3080</td>
<td></td>
<td>Basic Engr. 1410</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>THIRD YEAR</th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 2860</td>
<td>Physics 2330</td>
<td></td>
<td>EE 3810</td>
<td></td>
</tr>
<tr>
<td>EE 2330</td>
<td>EE 3050</td>
<td></td>
<td>EE 3040</td>
<td></td>
</tr>
<tr>
<td>EM 3710 or</td>
<td>EE 3010</td>
<td></td>
<td>EE 3010</td>
<td></td>
</tr>
<tr>
<td>Met. Engr. 3130</td>
<td>EE 3090</td>
<td></td>
<td>EE 3190</td>
<td></td>
</tr>
<tr>
<td>Non-Tech. Elective</td>
<td></td>
<td>WORK</td>
<td>Mech. Engr. 3520</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EE 3180</td>
<td></td>
<td>Math 3150</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FOURTH YEAR</th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE 3820</td>
<td>EE 3050</td>
<td></td>
<td>EE 3830</td>
<td></td>
</tr>
<tr>
<td>EE 3720</td>
<td>EE 3060</td>
<td></td>
<td>EE 3090</td>
<td></td>
</tr>
<tr>
<td>EE 3180</td>
<td>EE 3100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mech. Engr. 3530</td>
<td>EE 3090</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE 3080</td>
<td></td>
<td>WORK</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FIFTH YEAR</th>
<th>Total</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>See Senior Year Areas of Interest, page 121.</td>
<td>TOTAL: 204-205 Hours</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---
Cooperative Curriculum in Engineering Physics

**Students Working Spring and Fall Quarters—Group A**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRST YEAR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 1840…………4</td>
<td>Math 1850…………4</td>
<td></td>
<td>Math 1860…………4</td>
</tr>
<tr>
<td>English 1510…………4</td>
<td>English 1520…………4</td>
<td></td>
<td>Chemistry 1130…………4</td>
</tr>
<tr>
<td>Chemistry 1110…………4</td>
<td>Chemistry 1120…………4</td>
<td></td>
<td>Graphics 1330…………2</td>
</tr>
<tr>
<td>Graphics 1310…………2</td>
<td>Physics 1330…………2</td>
<td>WORK</td>
<td>Physics 1330…………2</td>
</tr>
<tr>
<td>Physics 1310…………4</td>
<td></td>
<td></td>
<td>Non-Tech. Elect…………4</td>
</tr>
<tr>
<td>(or 1318)…………4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SECOND YEAR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 2840…………4</td>
<td></td>
<td></td>
<td>Math 2850…………4</td>
</tr>
<tr>
<td>Physics 2310…………3</td>
<td></td>
<td></td>
<td>Physics 2320…………3</td>
</tr>
<tr>
<td>Engr. Elective…………3</td>
<td></td>
<td></td>
<td>Engr. Elective…………3</td>
</tr>
<tr>
<td>Non-Tech. Elect…………4</td>
<td></td>
<td></td>
<td>Non-Tech. Elect…………4</td>
</tr>
<tr>
<td><strong>THIRD YEAR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 2860…………4</td>
<td></td>
<td></td>
<td>Math Electives…………3</td>
</tr>
<tr>
<td>Physics 2330…………3</td>
<td></td>
<td></td>
<td>Physics 3230…………3</td>
</tr>
<tr>
<td>Physics 3210…………3</td>
<td></td>
<td></td>
<td>Engr. Elective…………3</td>
</tr>
<tr>
<td>Physic Lab…………3</td>
<td></td>
<td></td>
<td>Non-Tech. Elect…………4</td>
</tr>
<tr>
<td>Non-Tech. Elect…………4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FOURTH YEAR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math Elective…………3</td>
<td></td>
<td></td>
<td>Math Elective…………3</td>
</tr>
<tr>
<td>Physics 3220…………3</td>
<td></td>
<td></td>
<td>Physic 4220…………3</td>
</tr>
<tr>
<td>Physics 4210…………3</td>
<td></td>
<td></td>
<td>Elective…………3</td>
</tr>
<tr>
<td>Electives…………6</td>
<td></td>
<td></td>
<td>Tech. Elective…………3</td>
</tr>
<tr>
<td><strong>FIFTH YEAR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics 4110…………3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics 4120…………3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics Elective…………3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tech. Elective…………3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective…………3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engr. Elective…………3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL: 198 (199) Hours</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Students Working Summer and Winter Quarters—Group B**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRST YEAR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 1840…………4</td>
<td>Math 1850…………4</td>
<td></td>
<td>Math 1860…………4</td>
</tr>
<tr>
<td>English 1510…………4</td>
<td>English 1520…………4</td>
<td></td>
<td>Non-Tech. Elect…………4</td>
</tr>
<tr>
<td>Chemistry 1110…………4</td>
<td>Chemistry 1120…………4</td>
<td></td>
<td>Graphics 1330…………2</td>
</tr>
<tr>
<td>Physics 1310…………4</td>
<td>Physics 1320…………4</td>
<td>WORK</td>
<td>Physics 1330…………2</td>
</tr>
<tr>
<td>(or 1318)…………4</td>
<td>(1328)…………4</td>
<td></td>
<td>Non-Tech. Elect…………4</td>
</tr>
<tr>
<td><strong>SECOND YEAR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 2840…………4</td>
<td></td>
<td></td>
<td>Math 2850…………4</td>
</tr>
<tr>
<td>Physics 2310…………3</td>
<td></td>
<td></td>
<td>Physics 2320…………3</td>
</tr>
<tr>
<td>or 2318…………3(4)</td>
<td></td>
<td></td>
<td>Engr. Elective…………3</td>
</tr>
<tr>
<td>Engr. Elective…………3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>THIRD YEAR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 2860…………4</td>
<td></td>
<td></td>
<td>Math Elective…………3</td>
</tr>
<tr>
<td>Physics 2330…………3</td>
<td></td>
<td></td>
<td>Physics 3230…………3</td>
</tr>
<tr>
<td>Physics 3210…………3</td>
<td></td>
<td></td>
<td>Engr. Elective…………3</td>
</tr>
<tr>
<td>Physic Lab…………3</td>
<td></td>
<td></td>
<td>Non-Tech. Elect…………4</td>
</tr>
<tr>
<td>Non-Tech. Elect…………4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FOURTH YEAR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math Elective…………3</td>
<td></td>
<td></td>
<td>Math Elective…………3</td>
</tr>
<tr>
<td>Physics 4220…………3</td>
<td></td>
<td></td>
<td>Physic 3230…………3</td>
</tr>
<tr>
<td>Elective…………6</td>
<td></td>
<td></td>
<td>Elective…………3</td>
</tr>
<tr>
<td><strong>FIFTH YEAR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics 4110…………3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics 4120…………3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics Elective…………3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tech. Elective…………3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective…………3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engr. Elective…………3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL: 198 (199) hours</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1To be taken from Liberal Arts types of Language, Literature and Arts, or History and Society, with at least 16 hours from courses approved for Language, Literature and Arts.
2The Honors sequence (Physics 1318-28-38) is recommended for qualified majors.
3To be taken in College of Engineering.
5From engineering, mathematics, computer science, physics, chemistry, or astronomy.
6Students not planning to pursue graduate studies may substitute 3710-20-30.
### Cooperative Curriculum in Engineering Science

**Students Working Spring and Fall Quarters—Group A**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRST YEAR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic Engr. 1310</td>
<td>Basic Engr. 1320</td>
<td>Basic Engr. 1330</td>
<td></td>
</tr>
<tr>
<td>Math 1840</td>
<td>Math 1850</td>
<td>Math 1860</td>
<td></td>
</tr>
<tr>
<td>Chemistry 1110</td>
<td>Chemistry 1120</td>
<td>Chemistry 1130</td>
<td></td>
</tr>
<tr>
<td>English 1510</td>
<td>English 1520</td>
<td>English 1530</td>
<td></td>
</tr>
<tr>
<td>Physics 1310</td>
<td>Physics 1320</td>
<td>Physics 1330</td>
<td></td>
</tr>
<tr>
<td>WORK</td>
<td>WORK</td>
<td>WORK</td>
<td></td>
</tr>
</tbody>
</table>

| **SECOND YEAR** |                  |                 |            |
| Math 2840       | Math 2850        | Math 2860       |            |
| Physics 2310    | Physics 2320     | Mechanics 3311  |            |
| Met. Engr. 2110 | ES & M 3311      | Comp. Sci. 3150 |            |

| **THIRD YEAR**  |                  |                 |            |
| Math 2860       | Math 2870        | Math 2880       |            |
| Physics 2330    | Physics 2340     | Mechanics 3311  |            |
| Met. Engr. 2110 | ES & M 3311      | Comp. Sci. 3150 |            |

| **FOURTH YEAR** |                  |                 |            |
| ES & M 4810     | ES & M 4010      | ES & M 4020     |            |

| **FIFTH YEAR**  |                  |                 |            |
| ES & M 4810     | ES & M 4010      | ES & M 4020     |            |

**TOTAL**: 195 Hours

---

### Students Working Summer and Winter Quarters—Group B

<table>
<thead>
<tr>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRST YEAR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic Engr. 1310</td>
<td>Basic Engr. 1320</td>
<td>Basic Engr. 1330</td>
<td></td>
</tr>
<tr>
<td>Math 1840</td>
<td>Math 1850</td>
<td>Math 1860</td>
<td></td>
</tr>
<tr>
<td>Chemistry 1110</td>
<td>Chemistry 1120</td>
<td>Chemistry 1130</td>
<td></td>
</tr>
<tr>
<td>English 1510</td>
<td>English 1520</td>
<td>English 1530</td>
<td></td>
</tr>
<tr>
<td>Physics 1310</td>
<td>Physics 1320</td>
<td>Physics 1330</td>
<td></td>
</tr>
<tr>
<td>WORK</td>
<td>WORK</td>
<td>WORK</td>
<td></td>
</tr>
</tbody>
</table>

| **SECOND YEAR** |                  |                 |            |
| Math 2840       | Math 2850        | Math 2860       |            |
| Physics 2310    | Physics 2320     | Mechanics 3311  |            |
| Met. Engr. 2110 | ES & M 3311      | Comp. Sci. 3150 |            |

| **THIRD YEAR**  |                  |                 |            |
| Math 2860       | Math 2870        | Math 2880       |            |
| Physics 2330    | Physics 2340     | Mechanics 3311  |            |
| Met. Engr. 2110 | ES & M 3311      | Comp. Sci. 3150 |            |

| **FOURTH YEAR** |                  |                 |            |
| Mechanics 3340  | Mechanics 3350   | Mechanics 3360  |            |
| or 3540         | or 3550          | or 3560         |            |
| ES & M 3320     | ES & M 3321      | ES & M 3322     |            |

| **FIFTH YEAR**  |                  |                 |            |
| ES & M 4810     | ES & M 4010      | ES & M 4020     |            |

| **TOTAL**: 195 Hours |

---

1. Humanities/Social Studies courses approved by the Department.
2. Appropriate courses approved by the Department.
3. Appropriate courses in the College of Engineering approved by the Department.
4. Upper division courses in mathematics; statistics; natural science; or engineering approved by the Department.
## Cooperative Curriculum in Industrial Engineering

**Students Working Spring and Fall Quarters—Group A**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRST YEAR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 1840............4</td>
<td>Math 1850............4</td>
<td>Math 1860............4</td>
<td></td>
</tr>
<tr>
<td>English 1510........4</td>
<td>English 1520........4</td>
<td>Chemistry 1130........4</td>
<td></td>
</tr>
<tr>
<td>Chemistry 1110........4</td>
<td>Chemistry 1120........4</td>
<td>Basic Engr. 1330........4</td>
<td></td>
</tr>
<tr>
<td>Basic Engr. 1310........4</td>
<td>Basic Engr. 1320........4</td>
<td>Basic Engr. 1410........2</td>
<td></td>
</tr>
<tr>
<td>Graphics 1310........2</td>
<td>Graphics 1320........2</td>
<td>Graphics 1330........2</td>
<td></td>
</tr>
<tr>
<td><strong>SECOND YEAR</strong></td>
<td>WORK</td>
<td>WORK</td>
<td></td>
</tr>
<tr>
<td>Math 2840............4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English Elective........4</td>
<td>Physical Sciences 2310........3</td>
<td>Engr. Sci. &amp; Mech. 2710........3</td>
<td></td>
</tr>
<tr>
<td>Physics 2310........3</td>
<td>WORK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indus. Engr. 2310........1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indus. Engr. 2320........1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>THIRD YEAR</strong></td>
<td></td>
<td>Work</td>
<td></td>
</tr>
<tr>
<td>Math 2860............4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humanities Elective........4</td>
<td>Physical Sciences 2330........3</td>
<td>Engr. Sci. &amp; Mech. 3310........3</td>
<td></td>
</tr>
<tr>
<td>Physics 2330........3</td>
<td>WORK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stat. 3460........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FOURTH YEAR</strong></td>
<td></td>
<td>Work</td>
<td></td>
</tr>
<tr>
<td>Math 4050............3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indus. Engr. 3230........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indus. Engr. 3440........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indus. Engr. 4160........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tech Elective........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acct. 2210........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FIFTH YEAR</strong></td>
<td></td>
<td>Work</td>
<td></td>
</tr>
<tr>
<td>H.S. Elective........4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indus. Engr. 4200........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indus. Engr. 4800........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychology 2500........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indus. Engr. 4860........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tech Elective........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL: 204 Hours</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Students Working Summer and Winter Quarters—Group B

<table>
<thead>
<tr>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRST YEAR</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 1840............4</td>
<td>Math 1850............4</td>
<td>Math 1860............4</td>
<td></td>
</tr>
<tr>
<td>English 1510........4</td>
<td>English 1520........4</td>
<td>Chemistry 1130........4</td>
<td></td>
</tr>
<tr>
<td>Chemistry 1110........4</td>
<td>Chemistry 1120........4</td>
<td>Basic Engr. 1330........4</td>
<td></td>
</tr>
<tr>
<td>Basic Engr. 1310........4</td>
<td>Basic Engr. 1320........4</td>
<td>Basic Engr. 1410........2</td>
<td></td>
</tr>
<tr>
<td>Graphics 1310........2</td>
<td>Graphics 1320........2</td>
<td>Graphics 1330........2</td>
<td></td>
</tr>
<tr>
<td><strong>SECOND YEAR</strong></td>
<td>WORK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 2840............4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English........4</td>
<td>Work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics 2310........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engr. Mech. 2710........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indus. Engr. 2310........1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indus. Engr. 2320........1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>THIRD YEAR</strong></td>
<td>Work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 2860............4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H.S. Elective........4</td>
<td>Work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physics 2330........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engr. Mech. 3310........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stat. 3460........3</td>
<td>Work</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FOURTH YEAR</strong></td>
<td>Work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 4050............3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indus. Engr. 3230........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indus. Engr. 3440........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elec. Engr. 3120........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mech. Engr. 3520........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acct. 2210........3</td>
<td>Work</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FIFTH YEAR</strong></td>
<td>Work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H.S. Elective........4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Psychology 2500........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indus. Engr. 4040........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indus. Engr. 4160........3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tech Elective........3</td>
<td>work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL: 204 Hours</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Cooperative Curriculum in Mechanical Engineering

Students Working Spring and Fall Quarters—Group A

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRST YEAR</strong></td>
<td>Math 1840...</td>
<td>Math 1850...</td>
<td>Math 1860...</td>
<td>Math 1860...</td>
</tr>
<tr>
<td></td>
<td>English 1510...</td>
<td>English 1520...</td>
<td>English 1520...</td>
<td>Chemistry 1130...</td>
</tr>
<tr>
<td></td>
<td>Chemistry 1110...</td>
<td>Chemistry 1120...</td>
<td>Chemistry 1120...</td>
<td>Physics 2320...</td>
</tr>
<tr>
<td></td>
<td>Graphics 1310...</td>
<td>Graphics 1320...</td>
<td>Graphics 1320...</td>
<td>ES &amp; M 3311...</td>
</tr>
<tr>
<td></td>
<td>Basic Engr. 1510...</td>
<td>Basic Engr. 1320...</td>
<td>Basic Engr. 1320...</td>
<td>Met. Engr. 2110...</td>
</tr>
<tr>
<td></td>
<td>Physics 2310...</td>
<td>Economics 2110...</td>
<td>Economics 2110...</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
<tr>
<td></td>
<td>WORK</td>
<td>WORK</td>
<td>WORK</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
<tr>
<td><strong>THIRD YEAR</strong></td>
<td>Math 2660...</td>
<td>Math 2360...</td>
<td>Math 2850...</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
<tr>
<td></td>
<td>Physics 2330...</td>
<td>ES &amp; M 3700...</td>
<td>Physics 2320...</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
<tr>
<td></td>
<td>WORK</td>
<td>WORK</td>
<td>WORK</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
<tr>
<td></td>
<td>Mechanics 3620...</td>
<td>Mechanics 3650...</td>
<td>Mechanics 3630...</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
<tr>
<td></td>
<td>Mechanics 3440...</td>
<td>Mechanics 3660...</td>
<td>Mechanics 3650...</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
<tr>
<td></td>
<td>Mechanics 3410...</td>
<td>Mechanics 4420...</td>
<td>Mechanics 3910...</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
<tr>
<td></td>
<td>Elect. Engr. 3120...</td>
<td>Aero. Engr. 3511...</td>
<td>ES &amp; M 3320...</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
<tr>
<td></td>
<td>Tech. Elective...</td>
<td>Tech. Elective...</td>
<td>Tech. Elective...</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
<tr>
<td></td>
<td>Tech. Elective...</td>
<td>Tech. Elective...</td>
<td>Tech. Elective...</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
</tbody>
</table>

**Students Working Summer and Winter Quarters—Group B**

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRST YEAR</strong></td>
<td>Math 1840...</td>
<td>Math 1850...</td>
<td>Math 1860...</td>
<td>Math 1860...</td>
</tr>
<tr>
<td></td>
<td>English 1510...</td>
<td>English 1520...</td>
<td>English 1520...</td>
<td>Chemistry 1130...</td>
</tr>
<tr>
<td></td>
<td>Chemistry 1110...</td>
<td>Chemistry 1120...</td>
<td>Chemistry 1120...</td>
<td>Physics 2320...</td>
</tr>
<tr>
<td></td>
<td>Graphics 1310...</td>
<td>Graphics 1320...</td>
<td>Graphics 1320...</td>
<td>ES &amp; M 3311...</td>
</tr>
<tr>
<td></td>
<td>Basic Engr. 1310...</td>
<td>Basic Engr. 1320...</td>
<td>Basic Engr. 1320...</td>
<td>Met. Engr. 2110...</td>
</tr>
<tr>
<td></td>
<td>Physics 2310...</td>
<td>Economics 2110...</td>
<td>Economics 2110...</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
<tr>
<td></td>
<td>WORK</td>
<td>WORK</td>
<td>WORK</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
<tr>
<td><strong>THIRD YEAR</strong></td>
<td>Math 2660...</td>
<td>Math 2360...</td>
<td>Math 2850...</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
<tr>
<td></td>
<td>Physics 2330...</td>
<td>ES &amp; M 3700...</td>
<td>Physics 2320...</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
<tr>
<td></td>
<td>WORK</td>
<td>WORK</td>
<td>WORK</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
<tr>
<td></td>
<td>Mechanics 3620...</td>
<td>Mechanics 3650...</td>
<td>Mechanics 3630...</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
<tr>
<td></td>
<td>Mechanics 3440...</td>
<td>Mechanics 3660...</td>
<td>Mechanics 3650...</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
<tr>
<td></td>
<td>Mechanics 3410...</td>
<td>Mechanics 4420...</td>
<td>Mechanics 3910...</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
<tr>
<td></td>
<td>Elect. Engr. 3120...</td>
<td>Aero. Engr. 3511...</td>
<td>ES &amp; M 3320...</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
<tr>
<td></td>
<td>Tech. Elective...</td>
<td>Tech. Elective...</td>
<td>Tech. Elective...</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
<tr>
<td></td>
<td>Tech. Elective...</td>
<td>Tech. Elective...</td>
<td>Tech. Elective...</td>
<td>Humanity-Social Stud. Elect.</td>
</tr>
</tbody>
</table>

**TOTAL: 202 Hours**

*Humanities-Social Studies Electives: minimum of 20 hours required.

*Mechanical Engineering Electives: Senior courses in mechanical or aerospace engineering not otherwise required.

*Technical Electives: Upper Division Courses in engineering, mathematics or physics as approved by the Department.
# Cooperative Curriculum in Metallurgical Engineering

## Students Working Spring and Fall Quarters—Group A

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST</td>
<td>Mathematics 1840......4</td>
<td>Mathematics 1850......4</td>
<td></td>
<td>Mathematics 1860......4</td>
</tr>
<tr>
<td>YEAR</td>
<td>English 1510......4</td>
<td>English 1520......4</td>
<td></td>
<td>Chemistry 1130......4</td>
</tr>
<tr>
<td>YEAR</td>
<td>Chemistry 1110......4</td>
<td>Chemistry 1120......4</td>
<td>WORK</td>
<td>Graphics 1330......2</td>
</tr>
<tr>
<td>YEAR</td>
<td>Basic Engr. 1310......4</td>
<td>WORK</td>
<td>Chemet. Engr. 2030.4</td>
<td>Math 2650......4</td>
</tr>
<tr>
<td>SECOND</td>
<td>Chemet. Engr. 2010.4</td>
<td>Chemet. Engr. 3410......4</td>
<td>WORK</td>
<td>ES &amp; M 2720......3</td>
</tr>
<tr>
<td>YEAR</td>
<td>WORK</td>
<td>Math 2860......4</td>
<td>'Non-Tech. Elect......4</td>
<td>'Non-Tech. Elect......4</td>
</tr>
<tr>
<td>THIRD</td>
<td>WORK</td>
<td>ES &amp; M 3310......3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>YEAR</td>
<td>Chemet. Engr. 3420.4</td>
<td>Met. Engr. 3220......3</td>
<td>WORK</td>
<td>Met. Engr. 3230......4</td>
</tr>
<tr>
<td>YEAR</td>
<td>WORK</td>
<td>Met. Engr. 4710......3</td>
<td>'Non-Tech. Elect......4</td>
<td>Met. Engr. 3150......3</td>
</tr>
<tr>
<td>YEAR</td>
<td>Chemet. Engr. 4310.0</td>
<td>WORK</td>
<td>Chem. Engr. 4110......3</td>
<td>or 3130......3</td>
</tr>
<tr>
<td>YEAR</td>
<td>'Non-Tech. Elect......4</td>
<td>Chemical Engr. 4340......3</td>
<td>Tech. Elective......6</td>
<td>'Non-Tech. Elect......4</td>
</tr>
<tr>
<td>YEAR</td>
<td>Met. Engr. 3220......3</td>
<td>Chemet. Engr. 3420......4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>YEAR</td>
<td>Math 2860......4</td>
<td>WORK</td>
<td></td>
<td>TOTAL: 198 Hours</td>
</tr>
</tbody>
</table>

---

## Students Working Summer and Winter Quarters—Group B

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST</td>
<td>Math 1840......4</td>
<td>Math 1850......4</td>
<td>Math 1860......4</td>
<td>WORK</td>
</tr>
<tr>
<td>YEAR</td>
<td>English 1510......4</td>
<td>English 1520......4</td>
<td>Chemistry 1130......4</td>
<td>WORK</td>
</tr>
<tr>
<td>YEAR</td>
<td>Chemistry 1110......4</td>
<td>Chemistry 1120......4</td>
<td>Graphics 1330......2</td>
<td>WORK</td>
</tr>
<tr>
<td>YEAR</td>
<td>Graphics 1310......2</td>
<td>Graphics 1320......2</td>
<td>Basic Engr. 1320......4</td>
<td>WORK</td>
</tr>
<tr>
<td>YEAR</td>
<td>Basic Engr. 1310......4</td>
<td>WORK</td>
<td>Chemet. Engr. 2020.4</td>
<td>WORK</td>
</tr>
<tr>
<td>SECOND</td>
<td>Chemet. Engr. 2010.4</td>
<td>Chemet. Engr. 2011.0</td>
<td>WORK</td>
<td>WORK</td>
</tr>
<tr>
<td>YEAR</td>
<td>Chemistry 2140-49......4</td>
<td>Math 2860......4</td>
<td>WORK</td>
<td>WORK</td>
</tr>
<tr>
<td>YEAR</td>
<td>Math 2860......4</td>
<td>WORK</td>
<td>Math 2860......4</td>
<td>WORK</td>
</tr>
<tr>
<td>YEAR</td>
<td>Physics 2310......3</td>
<td>Math 3150......3</td>
<td>ES &amp; M 2720......3</td>
<td>WORK</td>
</tr>
<tr>
<td>YEAR</td>
<td>Met. Engr. 3210......4</td>
<td>WORK</td>
<td>Physcis 2320......3</td>
<td>WORK</td>
</tr>
<tr>
<td>YEAR</td>
<td>'Non-Tech. Elect......4</td>
<td></td>
<td>'Non-Tech. Elect......4</td>
<td>WORK</td>
</tr>
<tr>
<td>YEAR</td>
<td>Met. Engr. 4520......3</td>
<td>Met. Engr. 3150......3</td>
<td>Met. Engr. 4770......3</td>
<td>WORK</td>
</tr>
<tr>
<td>YEAR</td>
<td>Met. Engr. 4740......3</td>
<td>Met. Engr. 3130......3</td>
<td>Chemet. Engr. 4320.1</td>
<td>WORK</td>
</tr>
<tr>
<td>YEAR</td>
<td>'Non-Tech. Elect......4</td>
<td>or 3130......3</td>
<td>'Non-Tech. Elect......4</td>
<td>WORK</td>
</tr>
<tr>
<td>YEAR</td>
<td>'Non-Tech. Elect......4</td>
<td>ES &amp; M 3310......3</td>
<td></td>
<td>TOTAL: 198 Hours</td>
</tr>
</tbody>
</table>

---

*A minimum of one-half (12 quarter hours) of the non-technical electives must be taken from a single group under one of the three areas of the Humanities and Social Studies electives.*
### Cooperative Curriculum in Nuclear Engineering

#### Students Working Spring and Fall Quarters—Group A

<table>
<thead>
<tr>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST YEAR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 1840</td>
<td>4</td>
<td>Math 1850</td>
<td>4</td>
</tr>
<tr>
<td>English 1510</td>
<td>4</td>
<td>English 1520</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 1110</td>
<td>4</td>
<td>Chemistry 1120</td>
<td>4</td>
</tr>
<tr>
<td>Graphics 1310</td>
<td>2</td>
<td>Graphics 1320</td>
<td>2</td>
</tr>
<tr>
<td>Basic Engr. 1310</td>
<td>4</td>
<td>Basic Engr. 1320</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>WORK</td>
<td>WORK</td>
<td>WORK</td>
</tr>
<tr>
<td>SECOND YEAR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 2840</td>
<td>4</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Physics 2310</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Met. Engr. 3110</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Nuc. Engr. 2310</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Non-Tech. Elect.</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>THIRD YEAR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 2860</td>
<td>4</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Physics 3710</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Engr. Sci. &amp; Mech.</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Nuc. Engr. 2330</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Non-Tech. Elect.</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>FOURTH YEAR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 4710</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Physics 3720</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Elec. Engr. 3120</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Nuc. Engr. 3220</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Tech. Elective</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>FIFTH YEAR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nuc. Engr. 4110</td>
<td>3</td>
<td>Nuc. Engr. 4120</td>
<td>3</td>
</tr>
<tr>
<td>Nuc. Engr. 4210</td>
<td>3</td>
<td>Nuc. Engr. 4220</td>
<td>3</td>
</tr>
<tr>
<td>Nuc. Engr. 4710</td>
<td>3</td>
<td>Nuc. Engr. 4720</td>
<td>3</td>
</tr>
<tr>
<td>Nuc. Engr. 4810</td>
<td>3</td>
<td>Nuc. Engr. 4820</td>
<td>3</td>
</tr>
<tr>
<td>Nuc. Engr. 3150</td>
<td>3</td>
<td>Tech. Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>195 Hours</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Students Working Summer and Winter Quarters—Group B

<table>
<thead>
<tr>
<th>Fall</th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST YEAR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 1840</td>
<td>4</td>
<td>Math 1850</td>
<td>4</td>
</tr>
<tr>
<td>English 1510</td>
<td>4</td>
<td>English 1520</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 1110</td>
<td>4</td>
<td>Chemistry 1120</td>
<td>4</td>
</tr>
<tr>
<td>Graphics 1310</td>
<td>2</td>
<td>Graphics 1320</td>
<td>2</td>
</tr>
<tr>
<td>Basic Engr. 1310</td>
<td>4</td>
<td>Basic Engr. 1320</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>WORK</td>
<td>WORK</td>
<td>WORK</td>
</tr>
<tr>
<td>SECOND YEAR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 2840</td>
<td>4</td>
<td>Math 2850</td>
<td>4</td>
</tr>
<tr>
<td>Physics 2310</td>
<td>3</td>
<td>Physics 2320</td>
<td>3</td>
</tr>
<tr>
<td>Met. Engr. 3110</td>
<td>4</td>
<td>Engr. Sci. &amp; Mech.</td>
<td>4</td>
</tr>
<tr>
<td>Nuc. Engr. 2330</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Non-Tech. Elect.</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>THIRD YEAR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 2860</td>
<td>4</td>
<td>Math 4610</td>
<td>3</td>
</tr>
<tr>
<td>Physics 3710</td>
<td>3</td>
<td>Nuc. Engr. 3040</td>
<td>3</td>
</tr>
<tr>
<td>Nuc. Engr. 2330</td>
<td>1</td>
<td>Math 3150</td>
<td>3</td>
</tr>
<tr>
<td>Non-Tech. Elect.</td>
<td>4</td>
<td>Nuc. Engr. 3210</td>
<td>4</td>
</tr>
<tr>
<td>FOURTH YEAR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math 4710</td>
<td>3</td>
<td>Math 4550</td>
<td>3</td>
</tr>
<tr>
<td>Physics 3720</td>
<td>3</td>
<td>Physics 3730</td>
<td>3</td>
</tr>
<tr>
<td>Elec. Engr. 3120</td>
<td>3</td>
<td>Nuc. Engr. 3030</td>
<td>3</td>
</tr>
<tr>
<td>Nuc. Engr. 3220</td>
<td>4</td>
<td>Met. Engr. 3160</td>
<td>3</td>
</tr>
<tr>
<td>Non-Tech. Elect.</td>
<td>4</td>
<td>Nuc. Engr. 3730</td>
<td>4</td>
</tr>
<tr>
<td>FIFTH YEAR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nuc. Engr. 4110</td>
<td>3</td>
<td>Nuc. Engr. 4120</td>
<td>3</td>
</tr>
<tr>
<td>Nuc. Engr. 4210</td>
<td>3</td>
<td>Nuc. Engr. 4220</td>
<td>3</td>
</tr>
<tr>
<td>Nuc. Engr. 4710</td>
<td>3</td>
<td>Nuc. Engr. 4720</td>
<td>3</td>
</tr>
<tr>
<td>Nuc. Engr. 4810</td>
<td>3</td>
<td>Nuc. Engr. 4820</td>
<td>3</td>
</tr>
<tr>
<td>Nuc. Engr. 3150</td>
<td>3</td>
<td>Tech. Elective</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>195 Hours</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Departments of Instruction
Numbers in parentheses following the course titles indicate quarter hours credit offered.

Agricultural Engineering
(See College of Agriculture)

Basic Engineering and Graphics
(Non-Departmental Unit)

Basic Engineering (179)
Coordinator: W.T. Snyder

1310 Basic Mechanics, I (4) Forces, vector quantities, and moments; resultant of force systems; simple static equilibrium. Required of all engineering except engineering physics majors. Coreq: Math 1840. 3 hrs and 1 and 3 hr-lab.

1320 Basic Mechanics, II (4) Displacement vectors; particle kinematics and projectile motion; kinetics of particles using Newton’s laws, frictional forces, and impulses and momentums. Required of all engineering students except engineering physics majors. Prereq: 1310; Coreq: Math 1850. 3 hrs and 1-3 hr-lab.

1410 Engineering Computations (2) Presentation of data; elementary problem solving; use of slide rule and digital computer; treatment of error; empirical methods. Coreq: 1310. 2 hrs plus open computation lab.

Graphics (443)
Coordinator: J.N. Snider
Professor: C.A. Newton (Emeritus), M.S. Syracuse.
Associate Professors: E.K. Boyce. M.S. Tennessee; W.A. Lyday, Jr., M.S. Tennessee.

1210-20-30 Fundamentals of Engineering Graphics (2, 2, 2) Graphic representation of three-dimensional shape and size by orthographic and pictorial projection; sketching and dimensioning; tolerances. Problem solving utilizing spatial relationships and graphical vector analysis, and graphic presentation of engineering data. Must be taken in sequence. Two 3-hr periods or three 3-hr periods.

1410-20 Fundamentals of Engineering Graphics (3, 3) Graphical representation of three-dimensional shape and size; space relationships. Graphical presentation of engineering data. Required of all engineering students. Must be taken in sequence. One lecture and three 2-hr periods or two 3-hr periods.

1415-25 Fundamentals of Engineering Graphics (3, 3) Graphical representation of three-dimensional shape and size; space relationships. Graphical study with tutorial assistance for those who have had high school mechanical drawing and/or other related experience. Admission by permission of coordinator. Must be taken in sequence. May be interchanged with Graphics 1410-20 courses.

Engineering Studies (Non-Departmental Unit)

Engineering Studies (338)
Coordinator: E.E. Stanbury

2100 Introduction to Engineering Methodology (4) Designed to introduce non-engineering students to representative methods utilized in engineering, design, development, operation, and evaluation of processes and products for society; use of physical laws and examples of techniques such as modeling, systems analysis, economic balances, problems of resource use and technology control; thematic approach may be used.

4100 History of Engineering (4) History of technology and engineering with emphasis on identification of and developments in major areas such as transportation, communication, electrical, mechanical, nuclear, and aerospace. Open to all students.

4200 Technology Forecasting and Assessment (4) Procedures and problems in forecasting of consequences of existing and new technologies; assessment of technological options on use of these technologies. Social, political, economic, and technological implications of consequence-based assessment and control of technology. Open to all students.

4300 The Interaction Between Science and Engineering (4) Historical-to-current analysis of interactions between science and engineering patterns of mutual culmination and of distinction. Open to all students.

Chemical and Metallurgical Engineering

Professors: H.F. Johnson (Head), D. Eng. Yale, P.E.; D.C. Bogle, Ph.D. Delaware, B.S. Borie, Ph.D. Massachusetts Institute of Technology, engineer, manufacturing, design, and materials. Relationship to social and political structures of historical periods. Open to all students.

4200 Technology Forecasting and Assessment (4) Procedures and problems in forecasting of consequences of existing and new technologies; assessment of technological options on use of these technologies. Social, political, economic, and technological implications of consequence-based assessment and control of technology. Open to all students.

4300 The Interaction Between Science and Engineering (4) Historical-to-current analysis of interactions between science and engineering patterns of mutual culmination and of distinction. Open to all students.

GRADUATE STUDY PROGRAMS
Graduate programs leading to the degrees of Master of Science and Doctor of Philosophy with majors in chemical, mechanical, or metallurgical engineering or polymer engineering are offered. A program leading to the M.S. and Ph.D. degrees with specialization in polymer science and engineering is conducted jointly with the Department of Chemistry which offers a degree with similar specialization.

These programs have been strengthened by fellowships or grants provided by industrial companies including Dow, Du Pont, General Electric, Shell, Texaco, Procter and Gamble, Celanese, Monsanto, American Einka, Union Carbide, Stavrol, Owens Corning, Cities Service, and Eastman Kodak, and by graduate fellowships and traineeships provided by National Science Foundation.

Other aid to students has been available through research assistantships on contracts with industry and governmental agencies. The University’s Graduate School operates a Resident Graduate Program at Oak Ridge, Kingsport, and Chattanooga.

Graduate Student Faculty Catalog for detailed information.

Chemical and Metallurgical Engineering (227)


2110 Sophomore Inspection Trip (0) Inspection trip to industrial plant. Usually scheduled in fall on ETEE day. Required for chemical engineering and metallurgical engineering majors. S/N.


2300 Process Principles and Materials III (4) Materials structures, properties, and properties of materials in engineering applications, with emphasis on mechanisms of control of properties by chemical composition, thermal and mechanical treatment. Materials, mechanisms, mechanical properties, heat treatment, molecular weight and particle size distributions. Prereq: 2010; Chemistry 1130, 3 hrs and 1 lab period.

2220 Analog Computer Practice (1) Introduction to fundamentals of analog programming. Analog computer facilities and analog simulation languages will be emphasized. Prereq: Math 2840; Physics 2310 or Elec. Engr. 3110 or consent of instructor. One lab. Satisfactory-No Credit.

2230 Mini Computer Practice (1) Use of mini computers. Prereq: Basic Engineering 1410, or consent of instructor. One lab. Satisfactory-No Credit.

2240 Mini Computer Data Acquisition (1) Mini computers for data acquisition. Prereq: 2230 or consent of instructor. One lab. Satisfactory-No Credit.

3040 Process Principles and Materials IV (4) Applications of the fundamentals of thermodynamics to physical and chemical processes and thermodynamic cycles; applications of the Gibbs function to one, two and three phase chemical systems; use of tabular and graphical data in equilibrium calculations. Prereq: Physics 1130, Coreq: Math 2840. 3 hrs and 1 lab period.

3100 Introduction to the Materials of Technology (4) Examination of sources, processing, and properties of metallic, ceramic, polymeric, and composite materials based upon a historical perspective, and policies in technology, architecture, and art. Lectures and demonstrations. Open to students in all colleges. Prereq: Introductory science course.

4310-20 Seminar (1, 1) Presentation and discussion of economic, political, humanistic, and other topics of interest to chemical and metallurgical engineers. Satisfactory-No Credit.

Chemical Engineering (226)

3101 Industrial Inspection Trips (1) Technology of chemical process industries emphasizing Tennessee industry, plant trips. Satisfactory-No Credit.

3410 Flow of Fluids (4) Differential and overall momentum balances, mechanical energy balances; flow in tubes, piping systems, and packed beds; metering devices, pumps. Prereq: Chemet. Engr. 2020, Math 2850. 3 hrs and 1 lab.

3420 Heat Transfer (4) Differential and overall energy balances; steady and unsteady state, heat conduction in simple geometries; heat transfer in tubes and heat exchangers; condensation and boiling radiation. En. Prereq: 3410. 3 hrs and 1 lab.


3610 Introduction to Process Dynamics and Control (3) Introduction to concepts of process dynamics and control. Steady-state analysis of chemical process control systems. Unsteady state nature of chemical processes. LaPlace transform technique, block diagram algebra, transfer functions. Mathematical models for several processes are developed and analyzed in detail. Prereq: Mathematics 2350.

3620 Chemical Process Control (3) Basic control theory applied to chemical process control. Control systems, cascade control, feed-forward control, stability analysis, frequency response. Survey of modern control of typical industrial unit operations. Prereq: 3610.

4010-20 Thesis (3, 3) Investigation and report of elementary chemical engineering problem.

4110 Chemical Engineering Data Analysis (3) Analysis and statistical identification of system external; statistical properties of sample and source systems; empirical modeling of processes; statistical process control. Prereq: 3420, Math 3150.


4130 Introduction to Optimization (3) Principles and applications of optimization techniques to chemical process design; unconstrained optimization; equality constrained optimization, inequality constrained optimization, and dynamic programming. Prereq: Math 2840.

4220 Chemical Engineering Laboratory (3) Laboratory investigations of controlling factors in chemical engineering operations. Prereq: 3440-50, 3620, 4530.

4230 Project Laboratory (3) Laboratory investigations of chemical engineering problems, stressing techniques of group effort.


4420 Process Design and Economic Analysis (3) Development of last transformation on a process into an integrated plant design considering mass and energy balances. Product specifications, equipment characteristics, capital investment, operating costs and economic merit. Prereq: 4410, 4530.

4430 Special Problems in Design and Economics (3) Extension of 4420 for student participation in A.I. CHE arranged contest problem; other advanced design projects. Prereq: 4420.

4450 Hydrocarbon Processing (3) Study of specialized characterization of physical properties of fossil fuel raw materials and products, and processes for conversion of fossil fuel raw materials into products needed in industrial energy, industrial raw material and consumer markets. Prereq: 3440.


4620 Process Modeling, Simulation and Control of Chemical Processes (3) Development of process models, experimental process identification, process computer simulation, conventional and nonconventional feedback control, advanced concepts. Prereq: 3620 or equivalent background in basic control theory and differential equations.

4730 Mass and Energy Flow in Biological Systems (3) Basic concepts and mathematical principles applicable to biological systems. Derivations of general equations of biomass and energy transfer and flow in biological systems. Discussion of Volterra's equation and biological clocks, etc. Prereq: Consent of instructor.

4740 Introduction to Transport Phenomena in Biological Systems (3) Application of principles of transport phenomena to biological systems. Transfer of chemical energy in various cellular active transport systems; structure and rheology of physiological fluids, membrane and interfacial phenomena; analysis and design of artificial organs. Prereqs: 3440 and 3450 or consent of instructor.

4750 Microbiological Process Engineering (3) Application of chemical engineering principles and concepts to microbiological processes; continuous culture of microorganisms, food processing and pharmaceutical processes. Prereq: 3440, 3450 or consent of instructor.

4760 Principles of Biochemical Separation (3) Fundamental aspects and similarities of modern biochemical separation methods; classroom demonstrations, design of production and analytical systems. Prereq: Consent of instructor.

4781-82-83 Topics in Chemical Bioengineering (3, 3, 3) Problems of interest in chemical bioengineering. Prereq: Consent of instructor.

4810-20-30 Special Problems in Chemical Engineering (3, 3, 3) Chemical engineering problems related to recent developments in industrial practice. Prereq: Consent of instructor.

GRADUATE

5000 Thesis

5010 Graduate Seminar (1)

5111 Chemical Engineering Analysis (3)

5120 Heat Convection (3)

5130 Methods of Optimization (3)

5210 Process Dynamics (3)

5250 Chemical Process Industry Economics (3)

5310 Thermodynamics of Heterogeneous Equilibrium (3)

5220 Statistical Thermodynamics (3)

5410-20 Research and Design in Chemical Engineering (3, 3, 3)

5510 Chemical Reactor Design (3)

5610 Stagewise Mass Transfer Operations (3)

5620 Differential Mass Transfer Operations (3)

5810 Mechanics of Viscous Flow (3)

6000 Doctoral Research and Dissertation

6130 Process Optimization (3)

6210 Advanced Diffusional Operations (3)

6250 Venture Analysis In the Process Industries (3)

6310 Thermodynamics of Irreversible Processes (3)

6320 Statistical Thermodynamics of Non-equilibrium Systems (3)

6410 Stability Phenomena in Chemical Engineering: Discrete Systems (3)

6420 Stability Phenomena in Chemical Engineering: Continuous Systems (3)

6510 Applied Chemical Reaction Kinetics (3)

6520 Catalytic Reactor Design (3)

6610 Special Topics in Chemical Engineering (3)

6710 Process Dynamics (3)

Metallurgical Engineering (679)

2110 Engineering Materials (3) Introductory course correlating the atomic, crystal, and micro-structure of metals, and mechanical, physical, and chemical properties of engineering significance. 3 hrs or 2hrs and 1 lab.

2210 Electron Microscopy (1) Designed to present to science and engineering students a brief introduction to the principles of the transmission electron microscope and its applications to scientific problems. Prereq: Physics 2310-20. 3 hrs lab. Satisfactory-No Credit.

3010 Industrial Inspection Trips (1) Technology of metallurgical industries, emphasis on Tennessee industry, plant trips. Satisfactory-No Credit.

3110 Engineering Materials (I) Introductory course correlating the atomic, crystal, and micro-structure of metals with mechanical, physical, and chemical properties of engineering significance. 3 hrs and 1 lab.

3120 Engineering Materials II (3) Extension of 2110 with emphasis on control of mechanical properties of materials by specification of composition, thermal, and mechanical treatment; correlation of resultant properties with service performance. Suggested for mechanical, civil, and industrial engineering students.

3130 Engineering Materials III (3) Extension of 2110 with emphasis on control of electrical and magnetic properties of materials by specification of composition, thermal, and mechanical treatment; correlation of resultant properties with service performance. Suggested for electrical engineering students.

3140 Engineering Materials IV (3) Extension of 2110 with emphasis on control of electrical and magnetic properties of materials by specification of composition, thermal, and mechanical treatment; correlation of resultant properties with service performance. Suggested for mechanical and industrial engineering students.

3150 Engineering Materials V (3) Extension of 3110 with emphasis on mechanisms and control of reactions of engineering materials with aqueous, non-aqueous, and gaseous environments. Prereq: 3110 or 2110 or Chemet. Engr. 2030.

3160 Engineering Materials VI (3) Extension of 2110 with emphasis on materials of significance in nuclear engineering; nuclear reactor construction materials, nuclear fuel materials, and interaction of radiation with solids to produce changes in engineering properties. Suggested for nuclear and mechanical engineers.

3170 Engineering Materials VII (3) Extension of 2110 to biomedical applications of materials. Engineering materials in biomedical applications; metals, polymers and ceramics; prosthetic devices; dental applications; corrosion problems; failure analysis, fabrication. Prereq: 2110 or equivalent.

3220 Diffusion and Annealing (3) Introduction to solid state kinetics: point defects, solid solutions, diffusion equations and mechanisms, annealing of cold worked structures. Prereq: 3210; Math 2840.

3330 Phase Transformations (4) Thermodynamic and structural factors governing binary equilibrium. Ternary systems. Kinetics and morphology of precipitation and phase transformations in simple and complex systems. Prereq: 3220. 3 hrs and 1 lab.

3310 Biomedical Applications of Materials for Life Scientists (3) Principles of engineering materials; metals, polymers, and ceramics; methods of fabrication of components; corrosion; applications of prosthetic devices and dental materials. Prereq: Chemistry 1110-20 or equivalent.

3520 Materials Behavior and Chemical Process Equipment Design (3) Mechanical, metallurgical, and chemical considerations in design of chemical processing equipment. Prereq: Chem. Engr. 3030 or equivalent; 3150, and Chem. Engr. 3420. (Same as Engineering Mechanics 3520.)

3710 Metallurgical Applications in Manufacturing Technology (3) Fabrication methods and principles of mechanical/thermal processing for finished and semi-finished articles; casting, powder metallurgy, plastic forming, joining, heat treatment. Prereq: 2110 or equivalent and recommended senior standing in Mech. Engr.

4010-20 Thesis (3, 6-3, 6-3) Investigation and report on metallurgical engineering problem.

4230 Project Laboratory (3) Group or individual investigation of problems related to metallurgical engineering or materials science. May be repeated for a maximum of 9 credits. Prereq: Minimum of one course beyond 2110, 3110 or Chemet. Engr. 2030.

4240-50 Design and Analysis (3) Design and laboratory sessions on analysis of materials requirements and performance in engineering structures and components. Prereq: 3120 or 4730.

4510-20 X-Ray Diffraction and Crystallography (3, 3) Lectures and laboratory work in crystallography, x-ray radiation, and techniques, introduction to structure determinations. First quarter serves as introduction to subject. 3 hrs and 1 lab.

4540 Fracture-Safe Design (3) (Same as Engr. Sci. and Mech 4540.)

4610 Physical Properties of Materials (3) Electron theory of solids, types of bonding in solids; thermal, electrical, and magnetic properties of materials; relations between metallurgical structure and properties. Prereq: 3 hrs or 2 hrs and 1 lab.

4710 Production Metallurgy (3) Thermodynamic and kinetic principles of roasting, smelting, refining. Prereq: Chemet. Engr. 3040.

4730 Mechanical Metallurgy I (3) Elastic behavior. Description of stress, strain, and elastic constitutive relations. Effects of composition, microstructure, and mechanical behavior. Fatigue by yielding. 2 hrs and 1 lab or 3 hrs. Prereq: 2110 or Chem. Engr. 3030. Also suggested for mechanical engineering, engineering mechanics, and engineering science students.

4740 Mechanical Metallurgy II (3) Ductile and brittle fracture, creep and stress rupture, fatigue, and residual stresses. Effects of state of stress, loading, rate, time, temperature, and metallurgical structure. 2 hrs and 1 lab or 3 hrs. Prereq: 3120 or 3230, and 4730 or Mech. Engr. 3850 or consent of instructor. Also suggested for mechanical engineering, engineering mechanics, or engineering science students.

4780 Casting and Welding (3) Principles and processes of casting and welding: Heat transfer, solidification, segregation, gas-metal and slag-metal interactions, thermal treatments, associated stresses. Prereqs: 3120 or 3230. 3 hrs or 2 hrs and 1 lab.

4770 Mechanical Metallurgy III (3) Finite plastic strain. Plastic strain-stress relations. Principles of fabrication: forging, swaging, extrusion, rolling, deep drawing, 2 hrs and 1 lab or 3 hrs. Prereq: 4730 or consent of instructor. Also suggested for mechanical engineering, engineering mechanics, and engineering science majors.

GRADUATE

5000 Thesis

5010 Graduate Seminar (1)

5110 Point Defects and Dislocations (3)

5120 Plastic Deformation I (3)

5130 Plastic Deformation II (3)

5140 Diffusion and Annealing in Solids (3)

5150 Phase Transformations (3)

5170-80 Plastic Deformation (3, 3)

5210-20-30 Welding Metallurgy (3, 3, 3)

5310 Solidification and Crystal Growth I (3)

5410-20 Advanced X-Ray Diffraction (3, 3, 3)

5510-20 Applied Properties of Solids (3, 3)

5540-50 Electron Microscopy I and II (3, 3)

5610-20 Radiation Effects on Materials (3, 3)

5750 Corrosion (3)

5810-20-20 Special Topics in Metallurgy (3, 3, 3)

5840-50 Metallurgy of Defects and Fracture (3, 3)

5910-20-30 Metallurgical Thermodynamics (3, 3, 3)

6000 Doctoral Research and Dissertation

6110-20-30 Theoretical Metallurgy (3, 3, 3)

6210-20-30 Rate Processes in Metallurgy (3, 3, 3)

6230-30 Solidification and Crystal Growth II and III (3, 3)

6410-20 Thermodynamics of Solids (3, 3)

6810 Mechanical and Physical Properties of Crystals (3)

6820 Mechanical and Physical Properties of Crystals II (3)

6830 Seminar in Anisotropic Properties of Crystals (3)

Polymer Engineering (805)

4910 Applied Polymer Science (3) First course in physical properties of polymers. Polymer structure, crystalline and glass transitions, physical properties of amorphous and crystalline polymers, crystallization kinetics and mechanical properties are discussed. Prereq: Senior standing in engineering or science.

4920 Polymer Processing (3) Rheological properties of polymer melts and solutions, viscometry, unit operations of fiber, plastic and rubber industries: dimensional analysis and scale-up, flow through dies and pipelines, screw extrusion, spinning of fibers, injection molding. Prereq: Senior standing in engineering or science.

4930 Principles of Fiber Textile Engineering (3) Chemical and crystalline structure of important fibers: melt, wet and dry spinning of man-made fibers; drawing and texturizing; preparation of yarn; dyeing, weaving and knitting. Emphasis on quantitative aspects. Prereq: Senior standing in engineering or science.

4940 Plastics Fabrication Operations (3) Lecture and laboratory course treating unit operations of plastics industry. Types and mechanisms of operation of machinery used and structure and properties of fabricated parts. Operations to include: extrusion, co-extrusion, injection molding including structural foam, thermoforming, blow molding, rotational molding, etc. Prereq: Senior standing in engineering or science.

GRADUATE

5000 Thesis

5010 Graduate Seminar (1)

5110 Structural Characterization of Polymers (3)

5210 Non-Newtonian Fluid Mechanics (3)

5230 Mechanical Behavior of Solid Polymers (3)

5310 Polymer Solution Properties and Characterization (3)

5510 Modern Research Tools and Instruments for Polymer Science (3)

5710 Phase Transformations in Polymer Systems (3)

5910-20-30 Selected Topics in Polymer Science (3, 3, 3)

6000 Doctoral Research and Dissertation

6110 Optical Properties of Polymers (3)

6150 Advanced X-Ray Diffraction Methods for Characterization of Macromolecules (3)

6210 Advanced Continuum Mechanics (3)

6220 Advanced Methods in Polymer Processing (3)

6230 Advanced Mechanical Behavior of Polymers (3)

6610 Advanced Industrial Polymer Chemistry (3)

6910-30 Recent Advances in Polymer Science and Engineering (3, 3, 3)

Civil Engineering

Including Environmental Engineering

BACHELOR OF SCIENCE PROGRAM

The curriculum in civil engineering is designed to provide training in fundamental engineering sciences, certain nontechnical subjects and basic subjects in various civil engineering fields to serve as a basis for entrance into civil engineering practice, and/or for graduate study. By use of technical electives (27 hours maximum), a student can specialize as primary or secondary areas of study in construction, environmental engineering, engineering structures, transportation, or water resources. Specialization will be shown on student's transcript.

MASTER OF SCIENCE and MASTER OF ENGINEERING PROGRAMS

Graduate programs in civil engineering and environmental engineering leading to the degrees of Master of Science and Master of Engineering are offered to graduates of recognized undergraduate curricula.

The general requirements for the Masters' degrees are stated in the Graduate School Catalog.

DOCTORAL PROGRAM

Graduate work leading to the degree of Doctor of Philosophy with a major in civil engineering is offered. Major fields of study include environmental engineering, structural engineering, transportation, construction management, and water resources.

The general requirements for the Doctor's degree are stated in the Graduate School Catalog.

Civil Engineering (254)

2260 Engineering Surveys I (3) Accuracy in surveying measurements; analysis of errors; control systems and datums; mapping and subdividing areas. Prereq: Math 1850.

2310 Seminar (1) Presentation and discussion of topics related to civil engineering.

2360 Engineering Surveys II (3) Positioning of construction facilities; modern instrumentation; electronic surveying procedures. Prereq: 2260.

3160 Structural Theory (3) Moments of inertia; riveted, bolted, and welded joints; deflection of beams; restrained beams; combined stresses; column theory. Prereq: 3210.

3210 Stress and Framed Structures (3) Reactions, moments, shears and stresses in truss and framed structures from fixed loads; influence lines for reaction, moment, shears, and graphic statics. Prereq: Eng. Mech. 3310.

3230 Design of Framed Structures (3) Selection of rolled beams; design of compression and tension members and plate girders. Prereq: 4410 or registration therein.

3310 Physical Properties of Soils (3) Introduction to soils as a construction material, determination of physical properties of soils, factors affecting physical properties, and soil behavior. Prereq: 1 lecture and 1 lab. Prereq: Engr. Mech. 3110 and 3310.

3320 Seminar (1) Presentation and discussion of topics related to civil engineering.

3380 Surveying Practice (3) Route surveying procedures. Two three-hour labs. Coreq: 2360.

3690 Transportation Planning (3) Emphasis on transportation problems and perspectives, both rural and urban; use of the planning process to establish existing travel patterns, modeling of demand, proposing alternatives and their evaluation, and plan implementation. Prereq: Junior standing.

3610 Transportation Engineering (3) Introductory course on engineering, planning, maintenance and operation of various transportation modes, their guideways and terminals. Prereq: Junior standing.


4110 Concrete Design (3) Reinforced concrete beams and columns; use of standard specifications. Prereq: 3610 and 3710.

4120 Concrete Design (3) Reinforced concrete foundations, footings, piles, and retaining walls. Prereq: 4110 and 4410.

4220 Foundations and Substructures (3) Foundation explorations; principles of design of dry and subaqueous foundations. Prereq: 3310.

4230 Legal and Ethical Aspects of Engineering (3) Legal principles and professional engineering law; laws of contracts, torts, agency, real property; problems of professional registration and ethics.

4240 Structural Design (3) Plastic theory, eccentric connections, industrial building design, timber design. Two 3-hr. periods. Prereq: 3230 and 4410.

4260 Photogrammetry (3) Methods of plotting maps from aerial photographs; stereoscopic plotting instruments; applications. Prereq: 2360, or Forestry Summer Camp for forestry majors.

3230-30 Seminar (1, 1) Selected topics dealing with historical, modern, and professional aspects of civil engineering. Prereq: Senior standing.

4410 Deflections and Statically Indeterminate Structures (3) Deflections of beams and trusses; analysis of continuous, statically indeterminate, and frictional problems. Coreqs: 3210 and 3160.

4420 Analysis of Framed Structures (3) Maximum stresses due to moving loads; uses of influence lines; variations due to earthquake and wind; analysis of portals, buildings, and space frames. Coreq: 4410.

4430 Construction Methods and Equipment (3) Fundamental operations in construction and selection of equipment, production rates, balancing of equipment, and cost estimates. Prereq: Senior standing.

4460 Land Surveying (3) Procedures of locating properties; evaluating evidence; procedures to describe property, to create land divisions, and to prepare plots; laws of land surveying. Prereq: 2260 or equivalent.

4510-20 Advanced Structural Design (3, 3) Plastic design in steel; design of highway bridges in 4520. Prereq: 3320 for 4510; 3320 and 4110 for 4520.

4530 Cost Comparisons in Design and Construction (3) Cost of engineering and construction. Comparison of alternate designs with emphasis on applications to civil engineering problems. Prereq: 3230, 4110 or registration therein.

4540 Computer Utilization (3) Computer use, economic justification, and extent of use by industry. Utilization of computers for solution of civil engineering problems. Prereq: 3230 or registration therein.

4550 Engineering Behavior of Soils (3) Plastic and elastic behavior of soils, determination and use of engineering properties of in-situ soils. 2 hrs lecture and 1 lab. Prereq: Consent of instructor.

4560 Stabilization of Soils (3) Mechanistic stabilization of soils by compaction, cement, lime, and blending; chemical stabilization of soils with admixtures; water-proofing by pouring soils with additives. 2 hrs lecture and 1 lab. Prereq: 3310.

4600 Highway Engineering I (3) Design, construction, operation and maintenance of highway facilities. Includes integration of system planning and project planning to design and construction procedures. Prereq: 2360, 3600 and 3610.

4620 Airport Planning and Design I (3) Emphasis on airport master planning. Included for consideration on the air side; runway configuration, capacity, geometry and lighting; on the land side are included terminal layout and design, and ground access systems and parking. Prereq: 3600, 3610.

4640 Traffic Engineering (3) Characteristics of vehicle, driver and roadway and their interaction; traffic studies; basic considerations of traffic circulation and control; elements of urban transportation planning studies. Prereq: Senior standing.

4650 Highway Engineering II (3) Integration and application of various engineering principles and techniques to processes of planning, locating and design of highway facility through comprehensive team project. 1 lecture and 2 labs. Prereq: 4600.

4690 Airport Planning and Design II (3) Integration and application of principles of airport planning for purpose of site selection and design of an airport facility through comprehensive team project, includes environmental analysis, preliminary design of airport facilities. 1 lecture and 2 labs. Prereq: 4620.

4710 Portland Cement Concrete Mix Design (3) Properties and tests of Portland cement concrete, methods of concrete mix design, nondestructive concrete evaluation testing, use of concrete admixtures. 2 lectures and 1 lab. Prereq: 3710.

4720 Asphalt and Bituminous Concrete (3) Properties and tests of asphalt and asphaltic mixes, mix design of bituminous concrete. Emphasis on use of asphalt in transportation construction projects. 2 lectures and 1 lab. Prereq: 3710.

4731-32 Earthquake Resistant Structure I, II, (4, 4) (Same as Architectural and Industrial Engineering Science and Mechanics 4850.)

4850 Ecological Structural Matrix Methods (4) (Same as Architectural and Industrial Engineering Science and Mechanics 4850.)

4880 Civil Engineering Systems Design and Management (3) Introduction to basic systems engineering concepts, including decision theory; discussion of the role of decision maker and use of optimal principles in engineering planning. Prereq: Computer Science 3150.

4910-20 Special Topics (3, 3) Problems relating to recent developments and current practice in civil engineering. Prereq: Consent of instructor.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5110-20 Statically Indeterminate Structures (3, 3)

5140 Statically Indeterminate Structures (3)

5150 Matrix Formulation of Structural Problems (3)

5160 Analysis and Design of Plate Structures (3)

5170 Introduction to Structural Dynamics (3)

5180 Finite Element Structural Analysis (3)

5220 Pavement Design (3)

5240 Advanced Properties of Materials: Cement and Concrete (3)
and analysis of decision-making process; management of storm water for beneficial use. Prereq: 3000 and 3330.

4210 Water Resources Engineering Design (3) Elements of water resources systems and structures, including reservoirs, dams, control works, and open channel design. Dam safety control, environmental impact of reservoir projects. Prereq: 3330 or permission of instructor.

4220 Water Resources Engineering Development (3) Multi-objective evaluation procedures for comparison and selection among water resources development alternatives; achieving project optimality; single- and multi-purpose projects; special topics in new developments in water resources engineering. Prereq: 3330 or consent of instructor.

4330 Hydrologic Design (3) Application of frequency and regression analysis to hydrologic design of water resources systems; unstable surface runoff and streamflow modeling; urban peak runoff design using kinematic wave theory; evaluation of effects of land use changes on streamflow quantity and quality. Prereq: 3330.

4510 Elements of Water and Wastewater Transport Systems (3) Introduction to theory and design of water transportation and distribution systems and wastewater collection systems. Prereq: 3000, 3120 and 3330.

4520 Elements of Water and Wastewater Treatment Systems Design (3) Introduction to unit operations and processes employed in physical, chemical, and biological treatment of water and wastewater. Application of unit operations and processes in design of water and wastewater treatment plants. Prereq: 3000 and 3120.

4530 Sanitary Engineering Laboratory (3) Physical, chemical, and bacteriological analysis of water and wastewater. Prereq: 4030. 3 labs.

4600 Solid Waste Management (3) Quantities and characteristics of solid wastes; collection methods and equipment; disposal and recycle techniques; economics, planning and management. Prereq: 3000.

4700 Air Pollution-Air Resource Management (3) Introductory course on concepts of air pollution; analysis of kinematic wave theory; emission sources, meteorology and topographic factors, and adverse effects on receptors; engineering approaches for air pollution control. Prereq: Senior standing.

4810 Water Law (3) (Same as Law 8975 and Water Resources Development 4810.)

4820 Environmental Engineering Law (3) Legal aspects of water and air pollution, drainage, land use controls and environmental impact statements with emphasis upon federal-state relations, recent legislation and court decisions, and enforcement. Prereq: Senior standing.

4910-20-30 Special Topics in Environmental Engineering (3, 3, 3)

Electrical Engineering (320)

Professors:
J.M. Gooch (Head), Ph.D. Georgia Institute of Technology, P.E., I. Alexeff, Ph.D. Wisconsin; J.M. Bailey, Ph.D. Georgia Institute of Technology; T.V. Blalock, Ph.D. Tennessee; R.E. Bodenheimer, Ph.D. Northwestern; W.L. Green, Ph.D. Texas A & M; G.W. Hoffman, Ph.D. Harvard; E.C. Huebsohn, Ph.D. Texas; J.C. Hung, Ph.D. New York; P.E. E.J. Kennedy, Ph.D. Tennessee; P.E. W.O. Lefliff, M.S. Tennessee; P.Z. Peebles, Jr., Ph.D. Pennsylvania; J.F. Pierce, Ph.D. Pittsburgh; P.E. R.W. Rochelle, Ph.D. Maryland; F.M. Shoffner, Ph.D. Tennessee; B. Smith, Jr., M.S. Illinois; P.E. J.D. Tillman, Jr., Ph.D. Auburn; C.H. Weaver (Vice President for Continuing Education; Dean, Space Institute), Ph.D. Wisconsin, P.E.

Associate Professors:
Network theorems. Coreq: Math 2610. 3 hrs including biweekly lab.


2030 Circuits III (3) Polyphase networks considered as networks with more than one source. Magnetically coupled circuits. Transient analysis of circuits containing more than one storage element using classical methods. Steady-state analysis of networks containing sinusoidal sources of more than one frequency. Prereq: 2020, Math 2850 concurrently. 3 hrs including biweekly lab.

3010 Transient Analysis (3) Analysis of transient response of networks and systems; Laplace transform method and classical differential equation methods for system analysis; complex frequency concept and pole-zero concepts; application to electrical engineering problems. Prereq: 2020.


3050 Basic Field Theory (3) Forces between charged electric dipoles. Gauss and divergence potential and line integrals, material bodies, polarization, magnetic circuits, Maxwell’s equations, and electric and magnetic potentials. Prereq: Math 2860.

3060 Propagation I (3) Plane waves, reflection, guided waves, transmission line, standing waves, impedance, impedance matching, graphical methods, and network theorems. Prereq: 3050. 3 hrs including biweekly lab.

3080 Energy Conversion (3) Magnetic circuits, transformer theory and operation; principles of electromechanical energy conversion with emphasis on input-output characteristics; steady-state analysis of induction motor and d.c. machinery. Prereq: 3040. Includes a biweekly lab.

3090 Energy System Operation (3) Synchronous machines, transmission lines, and transformers as power system elements; power system representations, per unit calculation, symmetrical components, and fault studies. Prereq: 3080. Includes a biweekly lab.


3110 Basic Electrical Engineering-Circuits and Fields (3) For nonelectrical engineering majors. Prereq: Math 2850, Physics 2310-20. 3 hrs including biweekly lab.

3120 Basic Electrical Engineering-Electronics (3) For nonelectrical engineering majors. Prereq: 3110. 3 hrs including biweekly lab.

3130 Basic Electrical Engineering-Machinery (3) For nonelectrical engineering majors. Prereq: 3110. 3 hrs including biweekly lab.

3135 Basic Electrical Engineering Circuits-Instrumentation (3) For non-electrical engineering majors. Use of operational amplifiers for signal processing, analog-to-digital and digital-to-analog applications, signal conditioning, input-output devices, readouts, recorders, oscilloscopes; automated data collection; safety and grounding requirements. 2 labs. Prereq: 3120.

3180 Logic Design of Digital Systems (3) Introduction to boolean algebra and design of combinational logic circuits. Presents gate and flip-flop characteristics. Design of combinational and sequential circuits and other systems containing memory. Introduction to logic minimization, computer architecture and system components to include basic logic families and function of Arithmetic, Storage, Input/Output, and Control Systems. Instruction set capabilities and machine language programming. Prereq: 3010, Computer Science 3150. 3 hrs including biweekly lab.

3190 Plasma I (3) Engineering applications of physical electronics, plasma effects and devices. Topics include electron and ion trajectories, and plasma light sources, laser operation and applications (electro-optics), and MHD, controlled thermonuclear and other uses of advanced power production. 3 hrs biweekly lab. Prereq: Physics 2310-20.

3720 Linear Systems Analysis (3) Steady-state and transient analysis of linear, frequency-gain, phase, and polar plots; block diagrams, and signal flow graphs; analogous systems; properties of second order systems; introduction to feedback theory, stability criteria. Prereq: Math 3100, Mathe-
matics 3150. Coreq: 3180. 3 hrs including occasional labs.

3810 Electronics I—Basic Electronic Processes (3) Current conduction in semiconductors and high vacuum; theory of p-n junctions, characteristics of diodes; rectifiers and diode switches. Prereq: 3040 concurrently. 3 hrs including biweekly lab.

3820 Electronics II—Basic Electronic Devices (3) Characteristics and equivalent circuits of vacuum tubes and transistors with application to amplifier and control circuits. Prereq: 3180. 3 hrs including biweekly lab.

3830 Electronics III—Basic Electronic Amplifiers (3) Vacuum tube and transistor R-C coupled amplifiers; tuned amplifiers; basic power amplifiers; bias stabilization, feedback, and noise. Prereq: 3080 and 3820. Coreq: 3720. 3 hrs including biweekly lab.

4020 Direct Electrical Energy Conversion (3) Basic principles, typical devices and applications for production of electrical energy by thermoelectric effects, thermionic conversion, magnetohydrodynamics, solar cells, and fuel cells. Laboratory demonstrations. Prereq: 3080, 3190 and 3810.

4080 Microwave Circuits and Electronics (3) Circuits represented by wave shattering, isolators, gyrators, couplers, microwave vacuum diodes and klystrons, crossed field devices, parametric amplifiers, power generator semiconductors, varactor semiconductors. Prereq: 3080. 3 hrs including biweekly lab.

4090 Propagation II (3) Metal tube, dielectric rod, and strip-line waveguides. Waveguide resonators and other loading components. Design of structures utilized for microwave power transmission and microwave integrated circuits. Prereq: 3060. 4 labs.


4200 Electromagnetic Field Transients (3) Pulse propagation on lines, reflection of pulses, time domain reflectometry, radiation of pulses from antennas. Prereq: 3060, including biweekly lab.


4410 Power System Components and Control (3) Analysis of power system components, interconnection. Studies in control of power and frequency as well as voltage and reactive power. Prereq: 3090.
4420 Power Systems Analysis (3) System studies including load flow, faults, and stability. Prereq: 3090.

4430 Transmission, Distribution, and Protection (3) Studies in underground and d.c. transmission; consideration of over-voltage and insulation requirements of system protection against faults. Prereq: 3090.


4480 Plasma III (3) Macroscopic plasma equations, particle orbits, interactions, oscillations and waves. Prereq: 3190.


4500 Electro-Optic Detection and Instrumentation (3) Sensitivity, resolution (frequency response) and noise considerations. Applications of analysis and synthesis to the design of optical recording data for both spatial and temporal data (e.g. photographic emulsions) and temporal detectors (e.g. photodiodes, photomultipliers). Last third of the course will be devoted to selected electro-optic instrumentation systems (e.g. laser light scattering, optical data processing, holographic interferometry).


4600 Instrumentation Transducers and Signal-Conditioning Electronics (3) Study of various sensors and transducers utilized for parameter measurement. Use of operational amplifier in signal-conditioning; design examples such as active filters, amplifiers, attenuators, and function generators. Analysis of interfacing problems between transducer and signal-conditioner. Applications to environmental monitoring instrumentation. Prereq: 3120 or 3830.

4610 Analog-Digital Systems (3) Principles of analog to digital conversion. Applied to analog computer to include problem setup and scaling. Characteristics of analog multipliers, dividers and function generators are developed. Present comparators, digital to analog conversion, and analog to digital conversion techniques. Prereq: 3180 and 3830. 3 hours including bieweekly lab.


4630 Digital System Organization and Design (3) Considers system organization of digital systems including microcomputer and microprocessor architecture and comparisons. Characteristics of ALU and CPU structures, storage systems (RAM, ROM, and PROM building blocks), and Input/Output systems are developed. Control Unit organization to include serial - parallel modes of operation, synchronous - asynchronous sequencing and microprogramming of control functions. Prereq: 3180. 3 hours including bieweekly lab.

4660 Bioelectric Instrumentation (3) Nature and origin of bioelectric potentials, transducer amplifier requirements, recording systems and noise problems. Prereq: Senior standing.

4680 Electronic Power Amplifiers (3) Transistor and vacuum-tube power amplifiers; distortion, thermal considerations; t.f. power amplifiers; regulators. Prereq: 3830. 3 hrs including bieweekly lab.

4690 Communications Electronics (3) Oscillators, modulation and demodulation; basic communication systems. Prereq: 3830. 3 hrs including bieweekly lab.

4700 Switching Circuits (3) Pulse amplification, gating circuits, multivibrators, wave shaping circuits, trigger circuits. Prereq: 3010, 3830. 3 hrs including bieweekly lab.

4740 Integrated Circuits (3) Processing and fabrication of active and passive components for monolithic and hybrid circuits. Design of linear and digital and large scale integration. Prereq: 3620.


4800 Hardware-Software Interface in Minicomputer and Microprocessor System Design (3) Presents minicomputer and microprocessor interface design. Hardware-software interaction and trade-off. Priority interrupt structures are discussed and utilized. Time-sharing system development. Project oriented, contract course. Completion of two projects, one utilizing a microcomputer and the other a microcomputer, are minimal course requirements. Prereq: 3180.

4810 Discrete-Data Systems (3) Introduction to analysis and design of discrete data control system using frequency domain techniques. Real-time digital filtering techniques; application of digital computers in closed-loop feedback systems.

4820 Introduction to Pattern Recognition (3) Role of pattern recognition within framework of artificial languages. Topics dealing with the design of learning and adaptive machines. Typical applications of pattern recognition to problems of practical significance. Computer simulation of elementary pattern recognition problems. Prereq: Either 3100 and Computer Science 3150, or Statistics 3400 and Computer Science 3150. (Same as Computer Science 4820.)

4830 Digital Image Processing (3) Principal methods of coding, storing, and processing images by means of digital computers. Computational algorithms for image operations. Prereq: 3100 and Computer Science 3150, or Statistics 3450 and Computer Science 3150. (Same as Computer Science 4830.)

4850 Small Computer Systems (3) Basic structure of small computer systems, input-output techniques, interrupt structures, peripheral devices, system software and assembly language programming. Course is project oriented. Prereq: Basic Engineering 1410, Computer Science 3150 or 3151 or permission of instructor. (Same as Computer Science 4850.)

4910-20-30 Special Electrical Engineering Problems (3, 3, 3) Problems in electrical engineering involving library and experimental research.

GRADUATE

5000 Thesis

5040-50-60 Electrical Engineering Research (3, 3, 3)

5070-80 Modern Transform Methods (3, 3)

5110 Introduction to Network Analysis (3)

5120 Introduction to Network Synthesis (3)

5130 Advanced Network Analysis (3)

5170 Bioengineering Systems I: Models, Systems Analysis and Simulation (3)

5180 Bioengineering Systems II: Bioelectric Phenomena (3)

5190 Bioengineering Systems III: Instrumentation and Analysis (3)

5210-20 Advanced Electrical Machinery (3, 3)

5230 Advanced Electrical Machinery Applications (3)

5240-50-60 Control Systems (3, 3, 3)

5310 Basic Requirements for Plasma Fusion (3)

5320 Diagnostics for Fusion (3)

5330 Engineering of Fusion (3)

5340 Introduction to Quantum Electronics (3)

5350 Properties of Quantum Devices (3)

5360 Application of Quantum Electronic Devices (3)

5370 Advanced Direct Electrical Energy Conversion I (3)

5380 Advanced Direct Electrical Energy Conversion II (3)

5390 Advanced Direct Electrical Energy Conversion III (3)

5410 Power System Networks (3)

5420 Fault and Load Flow Studies (3)

5430 Power System Stability and Control (3)

5440 Distribution Systems (3)

5450 Selected Topics In Power Systems (3)

5510-20-30 Linear Active Circuits (3, 3, 3)

5570-80-90 Electronic Switching Circuits (3, 3, 3)

5610-20 Logic Design and Finite Automata Theory (3, 3)

5615-25 Introduction to Switching Theory and Logic Design (3, 3)

5630 Digital System Architecture (3)

5635 Introduction to Digital Computer and Analog Systems (3)

5650-60 Electronic Communication Systems (3, 3)

5670-80 Pattern Recognition (3, 3)

5690 Introduction to Artificial Intelligence (3, 3)

5710 Random Process Theory for Engineers (3, 3)

5720-30 Prediction, Filtering and Detection Theory (3, 3)

5740 Digital Processing of Signals (3)

5750-60 Radar System Analysis (3, 3)

5770 System Identification (3)

5800 Power Transmission Lines (3)

5810-20 Electromagnetic Fields (3, 3)

5830 Linear Antennas and Antenna Arrays (3)

5840 Aperture Antennas (3)

5850 Microwave Electronics (3)

5860 Electromagnetic Wave Propagation (3)

5870 Introductory Microwave Networks (3)

5940-50 Advanced Small Computer Systems (3, 3)

6000 Doctoral Research and Dissertation

6240 Advanced Systems Theory (3, 3)

6250 Stochastic Processes in Engineering Systems (3)

6260 Modern Control System Design (3)

6270-80-90 Special Topics in Control Systems Theory (3, 3, 3)
available in the engineering science program are biomedical engineering, engineering mechanics, engineering analysis and synthesis, environmental sciences, and engineering materials. Other elective groups are currently being developed and will be available in the future.

The biomedical engineering elective group provides the basic background for an engineer to contribute to the fields of biology and medicine in such technical areas as the design of research and diagnostic equipment, the development of artificial organs, and the application of the engineering sciences to further the basic understanding of biological systems. With some modifications, the program can emphasize other areas such as the use of computer systems to automate hospital operations, to analyze medical data, and to contribute to the broad area of health care delivery systems. Interested and qualified students may choose to use this program as a foundation for graduate study in engineering or the medical field.

The program includes the courses required for entrance into most medical schools, including the University of Tennessee Center for the Health Sciences in Memphis. The engineering mechanics elective group focuses on analytical and experimental methods used in investigating the interaction of forces and matter. It is designed especially to develop engineers capable of engaging in research and development in industrial and governmental research laboratories. Because such preparation involves emphasis on the link between the basic sciences and engineering fundamentals, the engineering mechanics elective group provides a good theoretical background for students wishing to pursue graduate engineering study.

The engineering analysis and synthesis elective group focuses on the application of such mathematical techniques as numerical analysis and simulation for the solution of practical engineering problems. As such, heavy emphasis is placed on the use of digital computers.

The environmental sciences elective group introduces the student to some of the areas of knowledge and to some of the basic skills involved in engineering efforts aimed at solving environmental and ecological problems. This program gives the necessary background in both stress/structural analysis and a high level of competence in this specialty during professional practice or through formal graduate study.

The engineering materials elective group provides background in the use of materials in the solution of engineering problems. This includes the selection of the proper materials to support the anticipated loads and consideration of the environmental conditions that are expected to exist during the design life of the structure. There is a special need in industry for individuals with background in both stress/structural analysis and material properties. The engineering materials elective group provides the student an opportunity to acquire this background.

The basic engineering science curriculum provides an opportunity to study significant aspects of the engineering science areas recognized by the American Society for Engineering Education such as (1) mechanics; (2) electrical science, electric and magnetic fields, circuits, and electronics; (3) thermodynamics and statistical mechanics; (4) materials science; (5) information science; (6) transfer and rate processes such as heat, mass, and momentum transfer. Other modern engineering fields which may be studied in the engineering science option are the sciences and engineering sciences. It is not expected that a student study all of the engineering sciences but will structure a course plan to provide depth in some of the engineering sciences.

Because of the large number of elective courses to be selected in the engineering science degree program, faculty advising plays an essential role in the process of development of the student's course of study. Before the end of the sophomore year, students in the engineering science program are required to develop, in concert with a faculty advisor, a statement of objectives and a course plan with the upper division years.

This course plan must be filed with the Office of Admissions and Records before the student's senior standing sheet can be prepared.

MASTER OF SCIENCE AND DOCTORAL PROGRAMS

Graduate programs leading to the degrees of Master of Science and Doctor of Philosophy with a major in engineering science are available to graduates of recognized curricula in engineering, mathematics, or one of the physical or biological sciences. Program options include solid mechanics, fluid mechanics, biomedical engineering, and other engineering sciences. In the biomedical and engineering sciences option, interdisciplinary programs are arranged to meet individual needs or interests. Each applicant is advised as to any prerequisite courses before entering a program; the student's program of study must be approved by his or her advisory committee, and must comply with the requirements of the Graduate School. The student's major professor may be selected from a department other than the Department of Engineering Science and Mechanics.

The flexibility and interdisciplinary aspects of the program options are intended to be of particular interest to prospective students currently employed in research, development, or design activities and whose interests in continuing education (either full-time or part-time) lie at one of the interfaces between science and engineering, or can be best met by interdisciplinary study in engineering. The department's course offerings and research activities are also intended to meet the needs of students who seek preparation for employment in engineering areas requiring specialization in mechanics, or in related interdisciplinary studies such as biomechanics.

General policies of the Graduate School relating to admission, residence, examinations, or research are described in the Graduate School Catalog.

Engineering Science and Mechanics (335)

2705 Elementary Statics and Dynamics (3) Resolution and composition of forces; moments; resultant forces of systems; free body diagrams and coplanar equilibrium; friction; particle dynamics (primarily for transfer students). Prereq: College Physics (Mechanics); Coreq: Math 1830 or equivalent.

2710 Statics (3) Resultants of space force systems.
static equilibrium of structural elements and space frames; belt friction; first and second moments. Prereq: 2705 or Basic Engineering 1310, Math 1830.

2720 Dynamics (3) Absolute and relative kine- matics of rigid bodies; kinetics of rigid bodies using Newton's law of motion; work-energy, and impulse-momen- tum. Prereq: 2705 or Basic Engineering 1303, Math 2010.

3110-20-30 Fluid Mechanics (3, 3, 3) Basic laws of fluid mechanics; fluid properties and compressibility; empirical analysis; Navier-Stokes equations; boundary-layer concepts; potential flow. Must be taken in sequence. Prereq: 2720 or Basic Engineering 3120 or 3130. Prereq: 2720, Math 2610. Coreq for 3120: Mech. Engr. 3311 or equivalent.

3310-20 Mechanics of Materials (3, 3) Concepts of stress and strain; stress-strain relations and Mohr's circle; stress and displacements in thin-walled pressure vessels; shafting; determinant, indeter- minate, and nonhomogeneous beams; column theory. Must be taken in sequence. Prereq: Basic Engineering 1330.

3311 Mechanics of Materials (4) Concepts of stress and strain; stress-strain relations and Mohr's circle; static analysis of members; area moment of inertia; stress and displacement analysis of axially-loaded members; torsion; bending. Not determinate. Coreq for 3311: Math 2850 or equivalent.

3410 Introduction to Biomedical Engineering (4) Designed to introduce the facets and opportunities of biomedical engineering, to provide the basic terminology and background knowledge for further courses in the field. Subjects include anatomy, physiology, and mathematical models of body systems. Coreq: Math 2840 or consent of instructor.

3420 Introduction to Clinical Engineering (3) Describes selected diagnostic and instrument devices in life sciences, health professions, and engineering in use and applications of medical instruments. Body systems are described along with the instrumentation used in each of these systems. Prereq: 3410, or consent of instructor.

3430 Perspectives on Medical Ceramics (3) Details development and implant materials from both an engineering and a medical viewpoint. Demonstrates results of combined efforts of physician and bio- medical engineer. Audiovisual aids and models are used to reinforce lecture topics. Prereq: 3410 and Metallurgical Engineering 2110.

3439 Medical Ceramics Laboratory (1) Surgical observations and laboratory experience to support lecture on dental ceramics and application parameters. Design project or paper required. Coreq: 3430.

3510 Materials of Engineering (3) Mechanical properties of engineering materials; behavior of materials under load. Or: 2 hrs and 1 lab. Prereq: 3310 and Metallurgical Engineering 2110 or 3110.

3520 Materials Behavior and Chemical Process Equipment Design (3) Same as Metallurgical Engineering 3520.

3700 Dynamics (4) Kinematics of rigid bodies; mass moments of inertia; coulomb friction; kinetics of rigid bodies using force, mass, acceleration; work-energy; impulse-momentum. Not for departmental graduate credit. Prereq: 2705 or Basic Engineering 1320; Coreq: Math 2850.

3710 Intermediate Dynamics (3) Three-dimensional dynamics of rigid bodies and rigid systems; dynamics of bodies with varying mass, central forces; Lagrange's equations. Prereq: 2720. Math 2820.

4010 Project in Design and Development (4) Investigation, design, and report of an engineering science project. Prereq: Senior standing.

4011 Project in Design and Development (3) Investigation, design, and report of an engineering science project. Prereq: Senior standing.

4420 Engineering Aspects of Infection Control (3) Biomedical engineer's role in infection control will be explored in hospital and clinical activities. Fluid flow phenomena, pressure measurement methods, and basic bacteriological and mycological tests will be demonstrated. Course identifies new and critical role for biomedical engineering in health care systems, and includes analysis of hospital facilities and monitoring systems. Prereq: 3410, or consent of instructor.

4430 Orthopaedic Biomechanics (3) Introduction to engineering principles and applications in orthopaedic rehabilitation. Topics include statics, Newton's laws of motion, stresses in simple sections, engineering materials, and biological materials. Prereq: Consent of instructor.

4500 Applied Mechanics for Life Scientists (4) Concise, and broad coverage of basic principles and concepts of mechanics. Fundamental concepts, statics, vibrations, continuum mechanics and properties of materials. Applications in engineering and medicine. Prereq: Math 1820-30 or consent of instructor.

4520 Biomedical Fluid Mechanics (3) Discusses objectives, review foundations and present developments in biomedical fluid mechanics. Properties of human blood and blood vessels, terminants of cardiac performance, analysis and measurement of flow and pressure in arteries, nonintra study of circulatory system, and biomechanics of microcirculation. Applications to areas of hemolysis, thrombosis, and fluid dynamics of heart assist devices. Prereq: 4500 or a course in fluid mechanics or consent of instructor.

4529 Biomedical Fluid Mechanics Laboratory (2) Measurement and recording of flow characteristics in biological system. Project and/or term paper required. Coreq: Basic Engineering 1310 or equivalent.

4530 Biomechanics (3) Discusses objectives, review foundations and present developments in areas of mechanical properties of living tissues, biome- chanics of injury and prevention, material compatibility of prosthetic devices and biomechanical problems related to impact. Prereq: 4500 or consent of instructor.

4540 Fracture-Safe Design (3) A critical review of mechanical properties of materials that are indicative of fracture resistance, including transition temperature, R-curves, stress intensity factors, and J-integrals; the use of these properties in design, 3 hours or 2 hours and 1 lab. Prereq: 3310 and Met. Engr. 2110. (Same as Metallurgical Engr. 4540.)

4580 Principles of Nondestructive Testing (3) (Same as Physics 4580.)

4610 Experimental Stress Analysis (3) Basic concepts: theory, techniques, and instrumentation of material strain gauges; theory and techniques of brittle fracture analysis; introduction to other stress analysis methods. Prereq: 3310, EE 2020 or 3110. 2 hrs and a 3-hr lab.

4620 Dynamic Data Acquisition (4) Instrumentation of measuring systems for dynamic events and responses; signal conditioning; oscillographs; oscillographs, and magnetic tape recording; telemetry and data transmission; data processing. Prereq: 3700, 3311, Elec. Engr. 3120. 3 hours and a 3-hour lab.

4630 Introductory Photomechanics (3) Introduction to photoelasticity, photelastic coating method, Moire method, interferometry, and holography. Prereq: 3310, Physics 2520. 2 hours and a 3-hour lab.

4710 Fundamentals of Vibrations (3) Free and forced vibrations, damped and undamped, lumped parameter systems; energy methods. Prereq: 2720, Math 2830.


4810-20 Engineering Analysis (4, 3) Integration of fundamental physical laws and mathematical methods of analysis with emphasis on application to realistic engineering problems. Prereq for 4810: 3110, 3311, and Computer Science 3150. Prereq for 4820: 3110, 3130, and Math 3190.

4850 Elementary Structural Matrix Methods (4) (Same as Architecture 4850 and Civil Engineering 4850.)

4910-20 Special Engineering Science Topics (3, 3) Problems related to recent developments and practice. Open to juniors or seniors with consent of instructor. May be repeated for credit with the consent of the instructor.

Graduate

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5110-20 Fluid Dynamics (3, 3)

5130 Introduction to Turbulence (3)

5180 Finite Element Structural Analysis (3)

5220 Mechanics of Viscous Flow (3)

5230 Non-Newtonian Fluid Mechanics (3)

5410-20 Theory of Elasticity (3, 3)

5430 Thermal Stresses (3)

5440 Theory of Linear Viscoelasticity (3)

5550 Fracture Mechanics (3)

5630-40 Photoelasticity (3, 3)

5710-20 Advanced Dynamics (3, 3)

5730 Advanced Vibrations (3)

5740 Vibrations of Continuous Media (3)

5750 Orbital Mechanics (3)

5800 Introduction to Continuum Mechanics (3)

5840 Perturbation Methods in Mechanics

5860 Introduction Finite Element Methods (3)

5910 Special Topics in Engr. Mechanics (3)

6000 Doctoral Research and Dissertation

6110-20 Advanced Topics in Fluid Mechanics and Convective Transport (3, 3)

6230-40-50 Theory of Turbulence (3, 3, 3)

6310 Theory of Plates (3)

6320 Theory of Shells (3)

6330 Theory of Elastic Stability (3)

6340 Theory of Plasticity (3)

6610 Photoelasticity (3)

6710 Impact and Stress Waves in Solids (3)

6800 Advanced Continuum Mechanics (3)

6810 Energy Methods (3)

6910 Special Topics in Engineering Mechanics (3)

Engineering Physics (778)

Professor W.M. Bugg (Head); Physics Staff as shown on page 211.

The curriculum in engineering physics is designed to fulfill the educational requirements for professional work in various fields of applied science which are based upon a thorough knowledge of physics. The first two years are concerned with fundamental courses in engineering, science, and mathematics. In the upper division, the curriculum allows some choice of courses in engineering and in physics depending upon the interest of the student. The undergraduate program is a complete, professional program, equipping the student for entry into a variety of work in industry and research. The program also leads to graduate work in either physics or engineering.

The courses in the Engineering Physics Curriculum are shown in tabular form on page
UNDERGRADUATE

The undergraduate curriculum in
industrial engineering is a program training
the engineer for the design, analysis,
operation and control of systems of men,
materials, processes and machines. These
systems include the individual work place,
the production line, the manufacturing
process, inventories and the enterprise as a
whole. The preparation of technical
electives is a special area related to industrial
engineering such as computer science,
statistics, human factors or operations research
and can be developed by the senior student.
The curriculum also includes a foundation
of course work in the physical and
social sciences.

The goal of industrial engineering is
increased productivity and economy in all
types of human activity.

MASTER OF SCIENCE PROGRAM

The graduate program in industrial
engineering contains a basic requirement
of 18 hours of course work covering topics
in industrial engineering at the graduate
level. The remaining 19 hours in the program
are based upon the educational objective
of the student and determined with the approval
of the student’s adviser. A minor is usually taken
in an area related to industrial engineering,
and a thesis is required. The program is open
to graduates of recognized curricula in all
fields of engineering.

A non-thesis program of 45 hours of
course work plus 9 hours of industrial
project is also available and open to graduates
in engineering or science. Basic courses
(5110, 5520 and 5700, 5710, 5720) are
18 hours of the total and are identical to the
basic courses in the program for thesis
students. An option is selected from
manufacturing, health systems, operations
research, human factors or decision
processing. Each option requires 9 hours
of non-engineering electives to support
the selected option. The project requires the
design of a procedure or operating system
based essentially upon the course work in the
selected option and clearly applicable as a
discovery to a problem in actual professional
practice. The student is examined on the
project and related course work.

2310 Seminar (1) Introduction to the industrial
engineering profession, its history and current
trends. Plant trips and lectures by the faculty.
Prereq: GE.7100.

2320 Modeling of Industrial Processes (3) Intro-
duction to model building. Techniques of de-
developing models of industrial processes, elementary
simulation, and the concept of optimi-
zation. Prereq: Basic Engineering 1410.

3210 Motion and Time Study (3) Design of work
methods, including analysis, improvement, timing of
work, and the determination of methods. Laboratory
work included. For non-industrial engineering stu-
dents. Prereq: Junior standing.

3220 Work Methods and Design (3) Job analysis, job
evaluation, design of wage structures, design of
work-place layouts, flow charting, activity analysis,
and methods improvement. Laboratory work included.
Prereq: 2310.

3230 Work Measurement (3) Use of work meas-
urement tools such as time study, predetermined
time systems, work sampling, historical data
analysis. Construction of time formulas, de-
velopment of standard time data, use of learning
curves, and design of wage incentive systems.
Laboratory work included. Prereq: 3220 and
Statistics 1310.

3410 Textile Industry Systems (3) History, basic
operations, products and economics of the industry;
the application of industrial engineering to
practices. Prereq: Junior standing and consent of instructor.

3430 Probabilistic Methods in Industrial Engi-
neering (3) Combination of probabilistic methods
and design tools for industrial engineers. Markov Chains,
Tol-
erancing, Gamma of Fit Tests and Elementary

3440 Quality Control (3) Application of statistical
methods to control quality of manufactured parts
and techniques of inspection. Prereq: 3430.

3510 Introduction to Operations Research I (3)
Introduction to methodology of operations research and
the analysis of industrial systems and research
industrial problems. Topics covered include sta-
tistical inference, decision theory, and queuing
theory. Prereq: 3430 and Computer Science 3150.

3520 Introduction to Operations Research II (3)
Introduction to mathematical programming
includes classical optimization theory, linear
programming (with emphasis on the simplex
method, the transportation problem, and the
assignment problem), and dynamic programming.
Prereq: Mathematics 4050 and Computer Science
3150.

3530 Introduction to Operations Research III (3)
Introduction to random processes and use of
probabilistic methods in decision support
and industrial analysis. Prereq: 3430 and 3510.

4040 Manufacturing Materials and Processes (3)
Study of characteristics of various manufacturing
materials and techniques common to industrial
3310, Met. Engr. 2110.

4060 Production and Inventory Systems (3)
Fundamentals and applications of statistical
forecasting for production planning, inventory
analysis and control techniques, production planning
procedures, economic order quantity
analysis, and production scheduling and control
models. Overall production process as an integrated
system. Prereq: 3510 and 3520.

4080 Forecasting Methods in Industrial Engineering (3)
Applications of forecasting methods to industrial
engineering problems. Includes moving averages and
eponential smoothing; linear regression and machine
models, autocorrelated time-series analysis, Delphi methods
and other selected industrial forecasting methods.
Prereq: 2230.

4150 Project Control with CPM and PERT (3)
A study of project planning and control based
primarily on "critical path" techniques, including
resource allocation, time-cost trade-off algorithms,
multi-project control, and computer programs.
Prereq: 3430.

4160 Materials Handling (3) Analysis and planning
for the overall problem of moving, packaging,
and storing of materials; equipment comparison
and selection, cost analysis. Prereq: 3220, 4520,

4170 Automatic Process Control (3) Characteristics
of automatic processes and controllers; elementary
use of closed loop control and applications to
industrial control systems. Prereq: Math 2890
and Engr. Sci. and Mech. 2720.

4200 Production Facilities Planning (3) Facilities
planning including plant layout, materials handling
and service area design. Prereq: 4500, 3220, 3510.

4230 Scheduling Systems (3) Performance
measures for job shop and flow shop scheduling,
including both static and dynamic conditions, as
well as both deterministic and probabilistic
scheduling. Deterministic and probabilistic dis-
patchiong conditions. Prereq: 3520.

4240 Predetermined Time Systems (3) Work design
and measurement using a predetermined time
system such as Methods Time Study, Basic
Motion Time-Study, or Work Factor. Theory and
application. Prereq: 3220.

4250 Work Measurement Applications (3) Ap-
plication of work measurement, standard data
methods and incentive systems to the design
of industrial work situations. Prereq: 3220.

4310 Seminar (1) Discussions, lectures, and trips to
study under current industrial engineering practice.
Prereq: Senior standing in industrial engineering.

4520 Engineering Economy (3) Methods and prob-
lems in selection or replacement of equipment.
Decision-making in using modern techniques, alternat-
ive capital recovery, economic life of equipment,
and rate of return on investment.

4530 Case Studies in Engineering Economy (3)
Extension of basic engineering economy principles
to actual problems faced by competitive firms
and regulated industries. Case studies taken
from literature that demonstrate the relationship
between local companies and make or buy
decisions and research on products.
Prereq: 3220, 3430 and Computer Science 3150.

4540 Industrial Development (3) Factors other than
mechanical or chemical which enter into successful
establishment of manufacturing enterprise. Cost
and location studies and market analysis to
determine the commercial feasibility of new
plants or projects.

4590 Simulation (3) Generation of outcome of
complex real random process by computer.
Models of complex systems using available simulation
languages. Simulation of decision support
systems. Prereq: 3430 and Computer Science
3150.

4800 Human Factors in Work Design I (3) Human
capabilities and limitations which must be reflected in
workplace layout, working environment
specifications; tool, equipment and vehicle design;
and in design of industrial communication-control
systems. Prereq: Junior standing in College of
Engineering or permission of instructor.

4810 Human Factors in Work Design II (3) Human
capabilities and limitations affecting workplace
layouts, working environment, design of tools and
equipment, and control systems. Prereq: 3430 and
Computer Science 3150.

4830 Health Systems Engineering (3) Hospital
management systems and means by which they may be
informed through application of modern
industrial engineering principles and techniques.
Prereq: 3220.

4840 Industrial Plant Problems Analysis (3) Industrial
problems and application of industrial
engineering, field assignment in local industry,
problem definition, analysis and presentation.
Prereq: 3220, 3440, 3510, 3520, 4520, 4800.

4860 Industrial Systems Analysis (3) Matrices and
linear vector spaces for industrial systems
Laplace and Z transform techniques and appli-
cations. General system description and model-
ing. Applications to industrial processes and systems. Prereq: 3510, 3520, Math 2860 and 4050.

4910-20-30 Special Industrial Engineering Topics (3, 3, 3) May be repeated for credit. Prereq: Permission of instructor.

4950 Industrial Safety (3) Development of organization and program for prevention and control of accidents with emphasis on OSHA Rules and Regulations. Prereq: Senior standing.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5110 Work Design (3)

5210 Advanced Work Measurement (3)

5240 Facilities Planning and Design (3)

5250 Advanced Scheduling (3)

5260 Information Systems Design (3)

5340 Applied Decision Theory (3)

5360 Statistical Methods in Industrial Engineering (3)

5360 Seminar (3)

5420 Reliability Engineering (3)

5520 Advanced Engineering Economy (3)

5600 Human Factors Engineering (3)

5610 Human Factors Engineering (3)

5700 Optimization Methods in Industrial Engineering (3)

5710 Linear, Quadratic and Dynamic Programming (3)

5720 Queuing Models, Inventory, and Simulation (3)

5730 Game Theory and Random Processes (3)

5810 Theory of Industrial Automatic Control (3)

5830 Health Systems Engineering II (3)

5840 Air Traffic Control Systems (3)

5850 Dynamic System Simulation (3)

5860 Industrial Systems Engineering (3)

5900 Design Project (1-9)

5910-20-30 Special Topics in Industrial Engineering (3, 3, 3)

6400 Probabilistic Methods in Engineering Systems (3)

6520 Operations Research Models in Engineering Economy Decisions (3)

6700 Nonlinear Programming (3)

6730 Dynamic Programming (3)

6740 Advanced Topics in Optimization and Dynamic Systems (3)

6910 Advanced Topics in Industrial Engineering (3)

Mechanical and Aerospace Engineering


Alumni Distinguished Service Professor. *Space Institute, Tullahoma.

BACHELOR OF SCIENCE PROGRAM

Separate, complete curricula are offered in aerospace engineering and mechanical engineering; however, the first two years of these curricula are identical. During the first two years, the curricula provide for training and study in the basic sciences of physics, mathematics and chemistry and engineering concepts and design. The first year of both programs continues with the development of the particular engineering sciences of the aerospace and mechanical engineering fields. In the senior year an opportunity is provided to apply the fundamental knowledge to mechanical or aerospace engineering problems. Both curricula are arranged with flexibility in the upper division years to permit emphasis on preparation for graduate study or technical employment.

Aerospace engineering has scientific foundations close to those of mechanical engineering. The aerospace engineer, however, devotes attention particularly to the research, development, design, testing, and production of aerospace vehicles—aircraft, spacecraft, missiles; auxiliary systems—heating, cooling, guidance, control; and propulsion systems—piston engines, turbo-jets, ramjets and rockets.

Mechanical engineering has its foundation in the basic sciences and requires an understanding of such areas of applied science as solid and fluid mechanics, thermodynamics, heat transfer, structures, vibrations, mechanical design, manufacturing processes and instrumentation in order to solve the complex engineering problems of the real world.

In the mechanical engineering curriculum, the student, with the approval of an advisor must select a senior year program of mechanical engineering and technical electives. The following areas of concentration are available.

Energy. A study of energy conversion systems and the laws governing energy transformations. This option includes the design and analysis of conventional and future power generating systems utilizing various energy sources. The central courses are Mech. Engr. 4140-50-60.

Environment. A study of the systems which control the environment within which it is enclosed. The program includes the design and analysis of air conditioning, refrigeration, and heat pump devices encompassing heating, cooling, ventilation, humidifying, and noise control. The central courses are Mech. Engr. 4710-20-30.

Manufacturing. A study of manufacturing methods and production processes common to mass production industries. The program includes the selection of processes, design of tools and fixtures, numerical control, and analysis and design of the total manufacturing system. The central courses are Mech. Engr. 4621-22-23-24 with related courses in metallurgy.

Machine Design. The study and application of the principles of mechanics, materials, and manufacturing processes to the design and analysis of machine elements, mechanisms, and structures. The central courses are Mech. Engr. 4660 and 4690.

Propulsion. The study of propulsion devices for ground vehicles, aircraft, and spacecraft. The program covers the analysis and design of internal combustion engines, gas turbines, jet and rocket engines using conventional and non-conventional fuels. The central courses are Mech. Engr. 4810, and Aero Engr. 4250-60.

Aerospace. The study of aircraft and spacecraft including the mechanics of flight and related systems and propulsion devices. The program includes the analysis and design of a variety of aerospace vehicles and systems. The central courses are Aero. Engr. 4240-50-60.

GRADUATE STUDY PROGRAMS

Graduate programs leading to the degrees of Master of Science, Master of Engineering, and doctorate of philosophy with specialization in mechanical engineering or aerospace engineering are available to graduates of recognized undergraduate curricula in mechanical or aerospace engineering and to graduates of other curricula who satisfy the necessary prerequisite courses. The general requirements for advanced degrees are summarized in the Graduate School Catalog.

Mechanical Engineering (650)

2040 Introduction to Mechanical Engineering (1)

Presentation and discussion of topics related to mechanical engineering. Satisfactory-No Credit.

3000 Energy—An Overview (4)

Introduction to available energy resources, recovery and utilization; power generation techniques including conservation schemes; emphasis on the resources-environment-man interaction associated with energy; primarily for non-engineering students.

3040 Seminar (1)

Presentation and discussion of topics related to mechanical engineering. Prereq: Junior standing. Satisfactory-No Credit.

3110 Applied Engineering Thermodynamics (3)

Energy and laws governing energy transformations; thermodynamic properties; applications to engineering problems. Prereq: Basic Engr. 1330, Chem. 1130, and Math 1860; for non-departmental engineering students.

3321-30 Engineering Thermodynamics (2, 3) Properties of gases and gas mixtures; chemical reactions, equilibrium, and design of equipment for engineering problems. Prereq: 3311 and 3321 respectively.

3410 Fluid Flow (3) Development of continuity, momentum and energy principles for fluid systems: applications to mechanical and aerospace engineering problems. Prereq: Math 2850; Coreq: 3311.


3502-30-40 Thermal Sciences (3, 3, 3) Fundamental principles of thermodynamics and transport phenomena as applied to engineering design. For non-departmental majors. To be taken in sequence. Prereq: Math 2820 and Basic Engr. 1330.


3660 Manufacturing Processes (3) Selection of processes as related to the design of machine parts. Casting, hot and cold forming, metal removal and weldments. Manufacturing tolerances and surface finishes. 2 hrs and 1 2-hr lab. Prereq: Met. Engr. 2110.

3681 Dynamics of Machines (3) Motion and forces in machines; vibrations and isolation of machinery; and balance of rotating machinery. Prereq: Graphics 1320 and ES & M 2720 or 3700.

3682 Selection of Machine Elements (3) Combined strength, stiffness, and load carrying capacity of machine elements; design of shafts, bushings, bearings, and gears. Prereq: ES & M 3320 or 3311.


4010 Thesis (3) Problem investigation and report. Prereq: Senior standing.

4140 Energy Conversion Systems (3) Laws governing energy transformations and their application to power plants. Prereq: 3330; Coreq: 4420.

4150 Energy Conversion Systems (3) Operating and design characteristics of modern energy technology conversion systems, selected direct conversion techniques. Prereq: 3330, 4420, 4510.

4160 Energy Conversion Systems (3) Economic and technical design parameters as applied to practical plants for public utilities or industrial applications; selected design and layout problems. Prereq: 4150- 50.

4170 Turbo-Machinery (3) Basic principles of turbomachinery; systematic methods of analysis, design, performance evaluation. Prereq: 3530 or Aerospace Engr. 3511.

4180 Energy Production and Utilization (3) Thermodynamic constraints on energy production; comparison of new energy sources and concepts; energy conservation schemes. Prereq: Senior standing in engineering.

4220 Environmental Noise (3) Basic principles of acoustics—measurement and control of noise in industrial and community environments. Prereq: Senior standing in engineering or consent of instructor.

4310 Seminar (1) Discussion of topics related to engineering; includes inspection trips to industrial plants. Prereq: Senior standing. Satisfactory-No Credit.

4320 Seminar (1) Presentation and discussion of topics related to engineering. Prereq: Senior standing.


4450 Lubrication (3) Hydrodynamic theory of lubrication of sliding bearings; application of Navier-Stokes equations to infinite and finite bearing, analytical and numerical solutions; applications to design. Prereq: 3440, Aerospace Engr. 3510.


4510 System Dynamics (4) Analytical models of physical systems, linearization, Laplace transforms, dynamic characteristics and stability of systems, numerical simulations, and analog computer solutions. Not for departmental graduate credit. Prereq: 3630 or Aerospace Engineering 3630.

4520-30 Creative Design (3, 3) Application of engineering principles to the solution of current problems with emphasis on design innovation. Prereq: Consent of instructor.

4621 Manufacturing Processes (3) Comparison of machining methods; plastic production; metrology. Prereq: 3650 and 3660 or consent of instructor.

4622 Tool Design (3) Principles underlying tool and die design; design of high-volume production tools and molds, work holding fixtures. Prereq: 3650-60 or consent of instructor.


4624 Manufacturing Engineering Systems Design (3) Design of complete manufacturing system for a particular product. Manufacturing planning, tool and fixture design, selection of manufacturing operations, redesign of product to reduce cost. Prereq: 4661.

4625 Manufacturing Process Engineering I (1) Product Specification: dimensional analysis of size and form; true position tolerance theory; tolerance analysis; and workpiece control for production to tolerance. Prereq: 3660 or IE 4040.


4633 Matrix Analysis (3) Application of matrices to solution of complex structures and lumped parameter vibrating systems. Prereq: 4632.

4660 Materials and Manufacturing Process (3) Selection of materials in design process, emphasizing relationship between stress and strain analysis, material properties, environment, temperature, manufacturing technology and cost. Prereq: 3650, 3660.


4690 Machine Design (3) Innovative design of complete machine; documentation including specifications, design calculations, working drawings and cost analysis. Written and oral report. Prereq: 4670, 4690.

4710 Thermal Environmental Systems (3) Vapor compression and absorption cycles; heat pump systems; moist air properties; psychrometric processes. Prereq: 3330, 3440.

4720 Thermal Environmental Systems (3) Design analysis of air washers, cooling towers and extended surface coils; solar radiation; building heat transmission; physiological effects. Prereq: 4420, 4710.


4740 Solar Energy Utilization (3) Nature and availability of solar radiation; review of selected heat transfer topics pertinent to solar energy collection and use; design analysis of solar energy collectors and methods of storage; selected applications. Prereq: 3321, 3440, or consent of instructor.

4810 Internal Combustion Engines (3) Thermo-chemical phenomena in internal combustion and propulsion engines. Combustion, detonation, equilibrium; dissociation. Analysis of internal combustion engines using ideal and real fluids. Prereq: 3330, 3440.


4910-20-30 Selected Topics in Mechanical Engineering (3, 3, 3) Problems related to developments and practice in mechanical engineering. Prereq: Consent of instructor.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5110 Conduction Heat Transfer (3)

5120 Convection Heat Transfer (3)

5130 Radiation Heat Transfer (3)

5140 Phase Change Heat Transfer (3)

5210 Classical Thermodynamics (3)

5220 Microscopic Thermodynamics (3)

5230 Special Topics in Thermodynamics (3)

5310 Intermediate Fluid Mechanics (3)

5410-20-30 Research in Mechanical Engineering (3, 3, 3)

5510-20-30 Mechanical Engineering Design (3, 3, 3)

5540-50-60 Advanced Strength of Materials (3, 3, 3)

5610-20-30 Experimental Stress Analysis (3, 3, 3)

5640-50-60 Advanced Machine Design (3, 3, 3)

5670-80-90 Dynamics of Machinery (3, 3, 3)

5710 Metal Machining (3)

5810-20-30 Rocket Propulsion Systems (3, 3, 3)

5840-50-60 Turbo-Machinery Systems (3, 3, 3)

5870 Dynamic Modeling and Simulation (3)
Aerospace Engineering (018)

2040 Introduction to Aerospace Engineering (1) Presentation and discussion of topics related to aerospace engineering. Prereq: Junior standing. Satisfactory-No Credit.

3040 Seminar (1) Presentation and discussion of topics related to aerospace engineering. Prereq: Senior standing. Satisfactory-No Credit.


3620 Mechanical Vibrations (3) Free and forced vibrations of single and multiple degree of freedom systems, balancing of rotating machinery. Prereq: 3610 and Mech. Engr. 3910.

4310 Seminar (1) Discussion of topics related to engineering; includes inspection trips to industrial plants. Prereq: Senior standing. Satisfactory-No Credit.

4320 Seminar (1) Presentation and discussion of topics related to engineering. Prereq: Senior standing.


4510 Airplane Performance (3) Introduction to airflow and wing characteristics, drag; propellers; static performance and maneuvers; theory and design of control surfaces; stability. Prereq: 3610.

4910 Selected Topics in Aerospace Science (3) Current problems in aerospace science; topics in science and engineering required for an understanding of the several areas of aerospace science. Prereq: Consent of instructor.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5110 Fundamentals of Aerodynamics (3)

5120 Experimental Methods in Fluid Mechanics (3)

5150-60-70 Vehicle Aerodynamics and Performance (3, 3, 3)

5210-20 Aerodynamics of Compressible Flows (3, 3)

5240 Dynamics of Viscous Flows (3)

5250 Introduction to Hypersonic Flow (3)

5260 Selected Topics in Aerodynamics (3)

5270-80-90 Aerospace Ground Test Facilities (3, 3, 3)

5310 Magnetohydrodynamics (3)

5340-50 Atmospheric Entry (3, 3)

5510-20-30 Aerospace Mechanics (3, 3, 3)

5540-50 Aerospace Vehicle Stability and Control (3, 3)

5560 Vertical or Short Take-Off and Landing Aircraft (3)

5570 Aerospace Vehicle Flutter and Vibration (3)

5590-90 Aerelasticity (3, 3)

5610 Applied Acoustics (3)

5620 Aeroacoustics (3)

5810 Aviation Systems: An Overview (3)

5820 Air Vehicles (3)

5900 Selected Engineering Problems (3-9)

5950 Seminars (1)

5990 Special Topics in Aerospace Engineering (1-3)

6000 Doctoral Research and Dissertation

6130-20-30 Magnetohydrodynamics (3, 3, 3)

6140-20 Physial Gasodynamics (3, 3)

6810 Advanced Boundary Layer Theory (3)

6910 Advanced Topics in Gas Dynamics (3)

Nuclear Engineering (716)

Professors: P.F. Pasqua (Head), Ph.D. Northwestern, P.E.; W.H. Jordan, Ph.D. California Institute of Technology; T.W. Kerlin, Jr., Ph.D. Tennessee; H.G. Mihalcea, Ph.D. California (Berkeley); J.E. Mott, Ph.D. Minnesota; J.C. Robinson, Ph.D. Tennessee; P.N. Stevens, Ph.D. Northwestern, P.E.

Associate Professors: H.L. Dodds, Ph.D. Tennessee, P.E.; J.B. Fussell, Ph.D. Georgia Institute of Technology; J.T. Mihalcea, Ph.D. Tennessee; H.C. Roland, Ph.D. Tennessee; O.L.Smith, Ph.D. Missouri.

Assistant Professor: L.F. Miller, Ph.D. Texas A & M.

BACHELOR OF SCIENCE PROGRAM

The curriculum in nuclear engineering is designed to provide basic training in many of the fields encountered in the applications of nuclear and radioactive materials. The first two years are concerned with the fundamental courses in engineering, physics, mathematics, chemistry, and English. The last two years encompass scientific and engineering courses equipping the student for entry into a variety of work in industry, research, or graduate studies.

MASTER OF SCIENCE AND MASTER OF ENGINEERING PROGRAMS

A graduate program leading to a degree of Master of Science and Master of Engineering is available to graduates of recognized undergraduate curricula in engineering and physics. Each applicant will be advised as to the necessary prerequisite courses before entering the program.

The general requirements for the Masters’ degrees are summarized in the Graduate School Catalog.

DOCTORAL PROGRAM

A program leading to the Ph.D. degree is available in nuclear engineering. For details, see the Graduate School Catalog.

2310-20-30 Seminar (1, 1, 1) Presentation and discussion of topics related to nuclear engineering. Satisfactory-No Credit.

3030 Introduction to Reactor Analysis (3) Nuclear reactions and radiations, cross section, fission process, diffusion and slowing down, steady state reactor theory criticality condition, reflected reactors. Prereq: Physics 3720; Math 4710.

3040 Environmental Effects of Nuclear Technology (3) Study of effects on environment since advent of military and peaceful uses of nuclear energy. Prereq: One year of biological or physical science.

3150 Dynamics and Controls (3) Systems differential equations; solution by classical methods; Laplace transform method; frequency response, stability, and control. Prereq: 3030.

3210-20 Thermodynamics (4, 4) Properties and laws of thermodynamic systems. First and second laws used to analyze power plant systems—both fossil and fission. Prereq: Math 2860 and Basic Engr. 1330.

3730 Momentum Transport (4) Development of differential and integral momentum equations; elementary theory of turbuclence, applications to piping systems, pumps and nuclear reactors. 3 lects. and 1 lab. Prereq: Math 4710.

4110-20-30 Introduction to Nuclear Reactor Theory (3, 3, 3) Nuclear structure, reaction rates, nuclear decay laws; neutron interaction; fission process, chain-reacting systems; diffusion equation including multigroup diffusion theory, nuclear natural and moderated, reaction, reactivity coefficients; perturbation theory. Prereq: Physics 3730 or consent of instructor.
4140 Thermoneutral Systems (3) Fusion reactions; properties of plasmas; plasma containment; plasma diagnostics; thermoneutral devices. Prereq: Physics 3730, Math 4550.

4210-20-30 Nuclear Engineering Laboratory (3, 3, 3) Radiation detection and counting instrumentation, counting statistics, half-life and decay schemes, gamma spectrometry, cross-section measurements, analog computation, diffusion properties of neutrons, critical loading experiments, control rod calibration, statistical weight, shielding, xenon poisoning, prompt critical reactor behavior, fission density and adjacent flux. Prereq: 4110 (or registration therein), or equivalent.

4530 Reactor Simulation Laboratory (3) Simulation of reactor design and operation with analog computer; reactor kinetics, single and multigroup theory, reactivity coefficients, poisoning, control rod calibration; power reactor, subcritical assembly. Prereq: 4120.

4610-20-30 Reactor Power Systems (3, 3, 3) Nuclear structure, decay laws, neutron diffusion, time behavior of reactors, heat removal, analysis of reactor power plants, economic, safety, and environmental aspects of nuclear power. Prereq: Math 4610; non-nuclear engineering students only.

4710 Energy Transport (3) Development of differential and integral energy conservation equations; conduction, convection, and radiation heat transfer; application of nuclear reactor fuel elements and heat exchangers. Prereq: 3730.

4720 Reactor Thermal Design (3) Hydrodynamics and heat transfer in boiling systems; boiling crises; fuel element thermal design, steam generator design. Prereq: 4710.

4730 Nuclear Reactor Design (3) First order reactor design, integration with nonnuclear heat transfer and power conversion system, economic evaluation; optimization procedure, description of typical systems. Coreq: 4130.


4820 Reactor Kinetics and Controls (3) Derivation of kinetic equations; basic kinetics parameters; transient response with feedback; control and protective systems. Prereq: 4110.

4840 Nuclear Reactor Safety (3) Presentation of reactor safety concepts and criteria; credible accidents; fission product release and transport; containment systems; accident analysis; engineered safeguards. Prereq: 4120.

4930 Nuclear Fuel Management (3) Discussion of problems associated with processing of nuclear materials; fuel cycle analysis; burn-up calculation. Prereq: 4120.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5110-20-30 Transport Processes in Nuclear Engineering (3, 3, 3)

5210 System Dynamics (3)

5220 Reactor System Dynamics (3)

5230 Experimental Methods in Reactor Dynamics (3)

5240 Reactor Instrumentation (3)

5310-20-30 Nuclear Systems Reliability (3, 3, 3)

5710-20-30 Nuclear Reactor Theory (3, 3, 3)

5740 Reactor Shielding (3)

5790 Monte Carlo Shield Design Shielding (3)

5840-50 Fast Breeder Reactors (3, 3)

5910-20 Advanced Nuclear Reactor Design (3, 3)

5970 Special Topics in Nuclear Engineering (3)
College of Home Economics

Lura M. Odland, Dean
Grayce E. Goertz, Associate Dean
Virginia S. Anagnost, Assistant Dean

Home economics is an integral part of The University of Tennessee's academic program in its three major functions of teaching, research, and extended services. The College ranks among the top three colleges of home economics in the nation in enrollment and second in the number of Master's degrees granted. Much of the qualitative and quantitative growth of the College is due to its highly qualified faculty and staff who, being aware of the current community problems and needs, have made its programs relevant to the goals and aspirations of today's students.

Today's students are seeking professional positions in which they can better serve people—individuals, families, consumers—to help them predict and solve problems arising from the increasingly rapid changes occurring in the society in which we live. The basis of the College's professional programs is to prepare young men and women to serve the needs of people in their many varied environments and different stages of life.

The philosophy of the College might best be stated as follows: Home economics, while it does seek knowledge which describes and analyzes, is not content with only studying "what is," but also is concerned with promoting "what can and should be" in order to enhance the quality of life and well-being of people and societies.

The College's mission is twofold: its graduate programs are geared toward research producing alternative solutions to technical and social problems which are and will be encountered by the people who are to be served; its undergraduate programs prepare students to work with people in a professional capacity and to direct them to the needed information so that they may make use of what has been learned in serving as professional agents of change.

The University of Tennessee pioneered as one of the first institutions of higher education in the South to offer home economics and has continued to hold a position of leadership. The first class was taught in 1897.

The faculty of the College numbers 60 full-time teaching and research staff. There are five departments with curricula leading to the Bachelor of Science degree: Child and Family Studies; Crafts, Interior Design, and Housing; Food Science, Nutrition, and Food Systems Administration; Home Economics Education; and Textiles and Clothing. The undergraduate program in Home Economics Education is offered in cooperation with the College of Education and the Home Economics Extension Education program is offered in cooperation with The Institute of Agriculture. Approximately 350 courses are offered in these departments. The graduate programs leading to the Master of Science degree were begun in the summer of 1925. Programs for the Doctor of Philosophy degree were initiated in 1960. The Doctor of Philosophy degree program in home economics now includes three options: Interdisciplinary, Food Science, Nutrition. Food Systems Administration may be taken as a concentration in the Food Science doctoral option.

Special Resources

Several special programs enhance the offerings of the College:

Selected Students have the opportunity to study for one year at the Merrill-Palmer Institute for Human Development and Family Life in Detroit, Michigan or at the Child Development Center of the Center for Health Sciences in Memphis. Credits earned may be applied toward a Bachelor of Science degree in most curricula of the College.

Model Research Programs for infant care and preschool day care and nursery school provide home economics students the opportunity to train for careers as directors of, and teachers in child day care facilities. The need for appropriate child day care facilities staffed with well-trained, competent staff is recognized as one of the most urgent problems of today's urban society.

Opportunities for home economics graduates with special interest in preschool programs are numerous and continue to increase. The Nursery School through Grade Three program offered jointly with the College of Education provides certification for teachers in early childhood education.

Each Summer the craft workshops in Gatlinburg, Tennessee, are made possible through cooperative efforts between the Department of Crafts, Interior Design, and Housing and the Pi Beta Phi Arrowsmith School of Crafts. The Pi Beta Phi Sorority provides the funds, the facilities and the management for Arrowsmith. The University of Tennessee, Knoxville, College of Home Economics, Department of Crafts, Interior Design, and Housing appoints the instructors, and provides for the administration of craft classes with appropriate accreditation. In addition to providing advanced instruction in designer-created crafts through classes taught by nationally known craftspersons, the craft workshops have expanded to a full-fledged program serving as a training center for artists and craftspersons from throughout the United States. Also, cooperation with national and local craft organizations has so stimulated the work of craftspersons
throughout the area that their work has gained national recognition.

The U.S. Department of Agriculture Textiles and Clothing Research Laboratory is a part of the Southern Region Mid-Atlantic Area and was located at The University of Tennessee in 1967. Textiles and clothing researchers collaborate with the U.S.D.A. staff to conduct investigations that will (1) determine consumer needs for textiles and clothing and the adequacy of products available to meet these needs, (2) develop basic principles to guide consumers in selecting and caring for textiles and clothing, and (3) solve other economic and technical problems pertaining to the field. Graduate students in this area may be trained at the laboratory.

International Study Tours in several areas of home economics are offered when a demand is indicated. The course "Home Economics 4910 International Study Tour" is offered for 6 credit hours at the undergraduate level. At the graduate level, Home Economics 5100 International Studies is available, depending on demand and resources, for up to 15 graduate credit hours. The length of the tours may vary from 6 to 8 weeks, and the program is under the direction of a member of the faculty.

The Department of Food Science, Nutrition, and Food Systems Administration has a cooperative arrangement in which food service systems, such as those of the University, hospitals, schools, hotels, and restaurants are available for laboratory experience for food systems administration students and in food industries for those in the food science curriculum.

The Food Systems Administration program includes a four-year Coordinated Undergraduate Program in Dietetics for those students interested in health care facilities, and a Food and Lodging Administration program to meet the need for administrators in the restaurant, resort, and tourist industry. Students in the Coordinated program receive clinical experience integrated with courses during the senior year in hospitals and other health care facilities. The Food and Lodging Administration program offers coordination of theory and experience with industry during all four years. Graduates of the Coordinated program will be eligible for membership in the American Dietetics Association (ADA) and for application for ADA registration. The Nutrition program is affiliated with the Child Development Center, UT Center for Health Sciences, Memphis, for special study in mental retardation and developmental disorders. A liaison is maintained with the Knox County Health Department to provide concurrent field experience for students in the Community Nutrition option.

All Departments of the College conduct basic and applied research which may be supported in part by the College, by special grants and contracts, and by the Agricultural Experiment Station. The University of Tennessee Atomic Energy Commission program at Oak Ridge also provides opportunity for training and research.

Workshops on special topics of current importance are offered by the different departments in home economics. These will be of special interest to those desiring to work for advanced degrees. Announcements are sent upon request.

The Continuing Education Program provides advanced courses in all areas of home economics at centers across the state for updating and re-training as faculty resources permit. The program includes short courses, workshops, evening courses, and special video-tape and tele-lecture courses. Individually planned graduate programs should be arranged with the appropriate department head.

Facilities
The Jesse W. Harris Home Economics Building was dedicated in 1926. Since that time two wings have been added, one in 1937 and another in 1959. All departments have well-equipped modern laboratories for both graduate and undergraduate work.

The Child Development Center is a separate building especially planned as a laboratory for teaching and research with preschool children. It houses an infant day care center, nursery school classrooms for two-, three-, four-, and five-year old children, a preschool curriculum laboratory, and rooms for observation and research.

A separate Child Day Care Center housed in the UT Golf Range Apartments is staffed by the College and provides a laboratory for study as well as a day care center for group care of children 2 to 6 years of age. The Family Life Center provides office and classroom space.

Food Science, Nutrition, and Food Systems Administration facilities include well-equipped laboratories for basic food science, experimental food science, experimental nutrition (animal), and chemistry for graduate and undergraduate students. A reading room and audio-tutorial laboratory provide opportunity for independent study. Laboratories include instruments for the evaluation of the chemical, physical, histological, and sensory properties of food, in addition to facilities for metabolic and survey studies of human nutrition.

Home Economics Education offices and laboratories are located in the Home Economics Building.

The Department of Crafts, Interior Design, and Housing facilities include provisions for study, regular classroom laboratory and studio experiences. Laboratories for crafts and interior design and housing studies are especially equipped for this purpose.

Textile research facilities are available to undergraduate and graduate students and to research personnel interested in textile studies that benefit fiber producers, fabric and clothing manufacturers, and consumers. Laboratories are well-equipped for the physical and chemical analyses of fabrics, yarns, and fibers.

Certification in Vocational Home Economics Education
Certification to teach vocational home economics requires either a Bachelor's or Master's degree in home economics from an institution offering certification for teacher training approved by the State Board for Vocational Education and by the United States Office of Education. The University of Tennessee, Knoxville is approved for the training of teachers in home economics.

A description of the home economics education curriculum leading to recommendation for certification will be furnished upon request. Graduate students interested in meeting certification requirements should consult the head of the Department of Home Economics Education. Transfer and graduate students who desire to qualify for vocational certification in home economics should state this when applying for admission so that their credits may be evaluated in terms of this goal.

Certification in Early Childhood Education
A joint program in Early Childhood Education—Nursery School through Grade Three—was recently approved for the Department of Child and Family Studies (College of Home Economics) and the Department of Curriculum and Instruction (College of Education). In addition to preschool education, graduates are certified to teach Kindergarten through Third Grade.

Educational Programs For Home Economics Extension Education
Students interested in careers as home economics extension agents have many opportunities for employment in service to urban and rural families. Special programs of study can be arranged for such students in cooperation with the Institute of Agriculture. The student selects a major in one of the curricula offered by the College of Home Economics. Elective courses may be selected by the student from those recommended by a joint advisory committee of the College of Home Economics, the College of Agriculture, and the home economics unit of the Agricultural Extension Service.

Summer field work experience, coordinated by the Department of Agricultural Extension Education, is available to selected students with a minimum 2.5 grade point average. The student must enroll in Agricultural Extension Education 3110 during the fall or spring quarter of the junior year prior to enrolling in Agricultural Extension Education 4110-20 Field Studies in the summer quarter (see page 58 for course descriptions). Six hours credit are awarded for summer Field Studies during which the student works ten weeks as a Junior Assistant County Agent of the Tennessee Agricultural Extension Service.

Students interested in this program should contact their adviser and the Administrative Assistant in the Office of the Dean of the College of Home Economics for detailed information.

Undergraduate Study In Home Economics
Curricula in the following areas lead to the degree of Bachelor of Science in home economics:

Child and Family Studies (CFS)
Option 1 — Early Childhood Development
Option 2 — Human Development and Family Studies
Option 3 — Nursery School - Grade 3
Crafts, Interior Design, and Housing (CIDH)
Option 1 — General Professional
Option 2 — Professional Interior Design
Option 3 — General Crafts
Option 4 — Crafts Specialization

Food Science, Nutrition, and Food Systems Administration (FSN/FSA)
Option 1 — Food Science
Option 2 — Nutrition Science
Option 3 — Community Nutrition
Option 4 — Coordinated Undergraduate Program in Dietetics (ADA)
Option 5 — Food and Lodging Administration

Home Economics Education (HEED)

Textiles and Clothing (T&C)
Option 1 — Merchandising
Option 2 — Textile Technology

NOTE: Students are advised to consult the University of Tennessee catalog as stated in the front section of this catalog as well as the requirements for their particular college or school.

For the degree of Bachelor of Science in home economics, students generally plan to complete the last forty-five quarter hours of work (three quarters) at The University of Tennessee, Knoxville. Seventy-two hours must be earned in courses numbered above 3000 at The University of Tennessee, Knoxville. The prospective transfer student is advised to preplan the total college program before starting any college level work. Careful planning prior to transferring to the College of Home Economics is essential to maintaining a program of study with maximum utilization of credit and sequence of course work. All new freshman and transfer students whose majors require chemistry must enroll in the freshman chemistry course sequence until requirements are completed. It is recommended that transfer students complete the freshman chemistry requirements before transferring to the College of Home Economics.

Students wishing to transfer 36 or more credit hours of the College must have an average of 2.0 for admission. Students with an average of less than 2.0 are not eligible for enrollment in junior or senior courses.

During the first quarter of residence, each student takes courses basic to all curricula and is assigned a faculty adviser for program planning.

A normal student load per quarter is 15-16 hours. The maximum load is 21 credit hours per quarter (18 hours maximum for the Coordinated Undergraduate Program in Dietetics) unless otherwise approved by the Dean.

When a student has completed one quarter in residence at The University of Tennessee, Knoxville (with at least a 2.0 average in course work), the student will be eligible to participate in self-registration. Students participating in the voluntary academic registration program bear full responsibility for meeting degree requirements in the proper sequence.

A College of Home Economics student may choose to take for elective credit only, a course (outside the specific requirements of the College of Home Economics and outside the major department) in which the student will receive a satisfactory or no-credit grade. The purpose of the satisfactory/no credit grading system is to encourage the student to explore subject matter areas outside of the requirements and other courses of the major by minimizing the restriction for the student's concern that performance may be somewhat less outstanding than that in preferred subject areas. These courses will count as hours for graduation but not for calculating the student's grade point average. A final grade of C or better will be recorded as satisfactory. The maximum satisfactory or no credit hours which could be counted toward a degree is 30 hours. When the student wishes to take a satisfactory or no credit course, the student must so indicate at the time of registration.

Proficiency examinations are offered for numerous courses of the College. Information on courses for which proficiency examinations are offered may be obtained from departments of the College of Home Economics.

Field training provides the opportunity for practical pre-professional experience and constitutes an integral part of many of the college's programs. Students enrolled in certain College of Home Economics courses who are enrolled in field experiences are required to participate in the group liability insurance plan offered through the College of Home Economics. The annual cost to the student for this insurance coverage is $4.00 (subject to change).

The first digit in course numbers indicates the student group for whom the course is primarily offered: 1000 indicates courses for freshmen, 3000 for sophomores, 4000 for juniors, 5000 for seniors, 6000 and 7000 for graduate students.

Education 3810 should be elected in the sophomore year by those students majoring in the vocational home economics education curriculum. This course is a prerequisite for other required courses in education. Psychology 2500 is a prerequisite for Education 3610.

For majors in the food science, nutrition or textiles curricula, Nutrition 3310 should be taken preferably in the sophomore year and not later than the first quarter of the junior year.

The following four courses are fundamental to home economics and are required in all curricula:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Credit</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 1510 Family Systems: Human Development First Quarter Freshman</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home Economics 1520 Family Freshman Systems: Aesthetic Environment</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home Economics 2510 Family Sophomore Systems: Physiological Well-being</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home Economics 3510 Family Junior Systems: Consumer Resources</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Professional Curriculum in Child and Family Studies

The Department of Child and Family Studies is unique in offering the study of parent-child relationships, economic, human development and family interaction throughout the life span, and with resource management and consumer studies.

Departmental goals and objectives are designed to contribute to the interpersonal and professional competence of men and women students, and to provide preparation for careers in the helping professions related to children, adolescents, adults, and families, depending on the option the student selects.

The curriculum is appropriate for persons oriented toward teaching and/or administrative positions in child care centers and nursery schools, public schools, positions in family services, child welfare agencies, extension, banks and consumer agencies. Other opportunities exist that require study beyond the bachelor's level (for example, administration, research and clinical services). All options provide a necessary background for graduate study in child development, family relationships, early childhood education, and social work. A total of 191 credits is required for the bachelor of science degree.

OPTION 1. EARLY CHILDHOOD DEVELOPMENT

This option is appropriate for persons interested in the following types of positions: day care teacher, nursery school teacher, welfare worker, parole officer, teacher for socially disadvantaged and/or handicapped children, entry level positions in social work, or preparation for graduate school.

Freshman Hours Credit
Child and Family Studies 2110 3
Home Economics 1510 4
Home Economics 1520 4
Natural Science 12
English 1510-20 8
Mathematics 1540 4
Philosophy 1510 or 2510 4
or 2520 or 2310 or
upper division foreign language 4
Music 1210 or Art 1815 or 1825 4
Electives 6

Sophomore Hours Credit
Literature Elective 4
Nutrition 1230 3
Physical Education Elective 2
Speech 2211 or 2021 or 2351 4
Physical or Biological Science Elective 4
Social Sciences 16
History or Political Science Elective 4
Electives 10

Junior Hours Credit
CFS 3110-25 7
CFS 3120 or Library Science 3510 3
CFS 3210-20 6
CFS 3420 or 4830 3
CFS 3510 or 3515 3
Home Economics 2510 4
Economics 2110 3
Philosophy or 3
Religious Studies Elective 4
Special Education 3333 3
Physical Education 3560 or 3570 3
Public Health 3210 4
Electives 7-6

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Credit</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFS 3110-25</td>
<td>Philosophy or Religious Studies Elective</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CFS 3120 or Library Science 3510</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CFS 3210-20</td>
<td>Physical Education Elective 2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CFS 3420 or 4830</td>
<td>Speech 2211 or 2021 or 2351</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CFS 3510 or 3515</td>
<td>Physical or Biological Science Elective</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home Economics 2510</td>
<td>Social Sciences 16</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Economics 2110</td>
<td>History or Political Science Elective</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philosophy or Religious Studies Elective</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special Education 3333</td>
<td>Physical Education 3560 or 3570</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Health 3210</td>
<td>Electives 7-6</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### OPTION 2. HUMAN DEVELOPMENT AND FAMILY STUDIES

This option is for undergraduate CFS majors who want a general background in individual and family studies. This option does not prepare for a career in preschool education. Students interested in Cooperative Extension Service, community agencies, general family counseling, social work, and graduate work might choose this undergraduate option.

**Freshman Hours Credit**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 1510</td>
<td>4</td>
</tr>
<tr>
<td>Child and Family Studies 2120</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 1520</td>
<td>4</td>
</tr>
<tr>
<td>Natural Science</td>
<td>12</td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
</tr>
<tr>
<td>Mathematics 1540</td>
<td>4</td>
</tr>
<tr>
<td>Philosophy 1510 or 2510 or 2520</td>
<td>6</td>
</tr>
<tr>
<td>Phil 2210 or 2211 or upper division</td>
<td>4</td>
</tr>
<tr>
<td>Music 1210 or Art 1815 or 1825</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
</tr>
</tbody>
</table>

**Sophomore Hours Credit**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 2510</td>
<td>4</td>
</tr>
<tr>
<td>Physical Education 2520</td>
<td>4</td>
</tr>
<tr>
<td>Speech 1221 or 2021 or 2351</td>
<td>4</td>
</tr>
<tr>
<td>Physical or Biological Science</td>
<td>4</td>
</tr>
<tr>
<td>Social Sciences</td>
<td>16</td>
</tr>
<tr>
<td>History or Political Science</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td>4</td>
</tr>
</tbody>
</table>

**Junior Hours Credit**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFS 2410 or Sociology 3150</td>
<td>3-4</td>
</tr>
<tr>
<td>CFS 3210</td>
<td>3</td>
</tr>
<tr>
<td>CFS 3220</td>
<td>3</td>
</tr>
<tr>
<td>CFS 3510</td>
<td>3</td>
</tr>
<tr>
<td>CFS 3515</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 3510</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>3</td>
</tr>
<tr>
<td>History or Political Science</td>
<td>4</td>
</tr>
<tr>
<td>Philosophy or Religious Studies</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>14-15</td>
</tr>
</tbody>
</table>

**Senior Hours Credit**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFS 4230 or 4350</td>
<td>3</td>
</tr>
<tr>
<td>CFS 4610</td>
<td>3</td>
</tr>
<tr>
<td>CFS 4110-4111</td>
<td>9</td>
</tr>
<tr>
<td>Educ C &amp; I 4850-4851</td>
<td>3</td>
</tr>
<tr>
<td>Educ C &amp; I 4450</td>
<td>3</td>
</tr>
<tr>
<td>Educ C &amp; I 4582</td>
<td>3</td>
</tr>
<tr>
<td>Spec. 3</td>
<td>5</td>
</tr>
</tbody>
</table>

**Total: 191 Hours**

**Twelve hours selected from the following:**
- Biology 1210-20-30
- Chemistry 1510-20-30
- Physics 1410-20-30
- Zoology 2411-71-81

**Minimum:**
- Mathematics 3000 or Psychology 3150 to be taken junior year.
- Requirement may be satisfied by Mathematics 3000 or Psychology 3150 to be taken junior year.
- Requirement may be satisfied by Nutrition 3020 to be taken junior year.
- Selected at least two of the following areas: Psychology 2500, 2530, 2540, Sociology 1510-20, Anthropology 2510, 2520, 2530.

### OPTION 3. NURSERY SCHOOL-GRÄDE THREE (Dual Program)

This option is appropriate for persons interested in working with children ages 0-8 in various settings. Certification for teaching grades K-3 is built into the program.

**Freshman Hours Credit**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 1510</td>
<td>4</td>
</tr>
<tr>
<td>Home Economics 1520</td>
<td>4</td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
</tr>
<tr>
<td>Speech 2021 or 2311</td>
<td>4</td>
</tr>
<tr>
<td>Music 1210 or 2020 or Art 1815</td>
<td>4</td>
</tr>
<tr>
<td>Biological Science</td>
<td>8</td>
</tr>
<tr>
<td>Math 2120-20-30</td>
<td>9</td>
</tr>
<tr>
<td>Philosophy or Religious Studies</td>
<td>4</td>
</tr>
</tbody>
</table>

**Sophomore Hours Credit**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFS 3210</td>
<td>3</td>
</tr>
<tr>
<td>Health Elective</td>
<td>3</td>
</tr>
<tr>
<td>Art Ed 2100-10</td>
<td>3</td>
</tr>
<tr>
<td>Music Ed 2100</td>
<td>6</td>
</tr>
<tr>
<td>P.E. 3450</td>
<td>3</td>
</tr>
<tr>
<td>Physical Science</td>
<td>8</td>
</tr>
<tr>
<td>Artistic Science</td>
<td>4</td>
</tr>
<tr>
<td>Culture and Society Electives</td>
<td>4</td>
</tr>
<tr>
<td>History Elective</td>
<td>4</td>
</tr>
<tr>
<td>Social Science Elective</td>
<td>4</td>
</tr>
</tbody>
</table>

**Junior Hours Credit**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFS 3120</td>
<td>3</td>
</tr>
<tr>
<td>Educ C &amp; I 4450</td>
<td>3</td>
</tr>
<tr>
<td>Educ C &amp; I 3260-70-80-81</td>
<td>12</td>
</tr>
<tr>
<td>Educ C &amp; I 3350</td>
<td>3</td>
</tr>
<tr>
<td>Educ C &amp; I 3720</td>
<td>3</td>
</tr>
<tr>
<td>Educ C &amp; I 4303</td>
<td>3</td>
</tr>
<tr>
<td>Educ C &amp; I 3010-20-30</td>
<td>6</td>
</tr>
</tbody>
</table>

**Elective 3**

**Total: 191 Hours**

**Courses should be chosen from:**
- Biology 1210 or 1220 or 1220 or Botany 1110 or 1120 or Zoology 2920 or 2930.
- Philosophy 1510 or 1520 or 2510 or 2520 or Religious Studies 2610 or 2620.
- Nutrition 1230 recommended.
- Courses should be chosen from: Chemistry 1110, 1510, 1610 (choose one) or 1120, 1520, 1620 (choose one), or Geology 1510 or 2210 or Astronomy 2110 or 2120, or Physics 1210 or 1230 or 2210 or 2230, or Sociology 1510, 1520, 3410, or 3420.
- Course should be chosen from: Any 2000 level English literature course.
- Course should be chosen from: Anthropology 2530 or 3410 or Human Services 2690, 3100, 3200, or 3350 or Psychology 2530 or 3530 or Sociology 1510, 1520, 3410, or 3420.
- Course should be chosen from: Any 1000 level or 2000 level history course.
- Course should be chosen from: Any course in areas of anthropology, economics, geography, human services, political science, psychology, sociology.

### Crafts, Interior Design, And Housing

**Acquisition and Exhibition**

The department reserves the right of acquisition and exhibition of work completed in its studios under the guidance of the faculty.

### OPT1 1. GENERAL PROFESSIONAL

This general curriculum is designed for students preparing for positions in business, educational and public service programs and provides background for advanced study in crafts, interior design and housing.

**Freshman Hours Credit**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 1110-20-30 or 1510-20-30</td>
<td>12</td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
</tr>
<tr>
<td>Food Science 1010</td>
<td>4</td>
</tr>
<tr>
<td>Home Economics 1510</td>
<td>4</td>
</tr>
<tr>
<td>Home Economics 1520</td>
<td>4</td>
</tr>
<tr>
<td>Humanities 1540</td>
<td>4</td>
</tr>
<tr>
<td>Social Science Electives</td>
<td>12</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>CIDH 1419</td>
<td>2</td>
</tr>
</tbody>
</table>

**Sophomore Hours Credit**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 2510</td>
<td>4</td>
</tr>
<tr>
<td>English 2510 or 2530 or 2540</td>
<td>8</td>
</tr>
<tr>
<td>Psychology 2500 or 2530 or 2540</td>
<td>8</td>
</tr>
<tr>
<td>CIDH 2210</td>
<td>4</td>
</tr>
<tr>
<td>Sociology 1510</td>
<td>4</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
</tr>
<tr>
<td>Zoology 2920-30</td>
<td>8</td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

**Junior Hours Credit**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Science 3020</td>
<td>3</td>
</tr>
<tr>
<td>CFS 3420</td>
<td>3</td>
</tr>
<tr>
<td>Microbiology 2010</td>
<td>4</td>
</tr>
<tr>
<td>Nutrition 3250</td>
<td>4</td>
</tr>
<tr>
<td>CIDH 3110</td>
<td>3</td>
</tr>
<tr>
<td>CIDH Electives</td>
<td>6</td>
</tr>
<tr>
<td>Social Science Elective</td>
<td>4</td>
</tr>
<tr>
<td>Textiles and Clothing 3420</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 3510</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td>14</td>
</tr>
</tbody>
</table>

**Senior Hours Credit**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFS 3210 or 3250</td>
<td>3</td>
</tr>
<tr>
<td>CFS 3510 or 3550</td>
<td>3</td>
</tr>
<tr>
<td>CIDH 4320</td>
<td>3</td>
</tr>
<tr>
<td>Humatities and Social Science Electives</td>
<td>6</td>
</tr>
<tr>
<td>CIDH 4410</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td>26</td>
</tr>
</tbody>
</table>

**Selected from anthropology, political science, history.**

**Total: 189 Hours**
OPTION 2. PROFESSIONAL INTERIOR DESIGN

The following curriculum provides for those students who are primarily interested in becoming professional interior designers.

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 1510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Home Economics 1520</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CIDH 1419</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Art 1115-25-35</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Art 1815-25</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>4 \natural Science Electives</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 2510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CIDH 2115-16</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>CIDH 3125</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>CIDH 3130</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Economics 2110-20</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Home Economics 2510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychology 2500 and 2530 or 2540</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Marketing 3110</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Textiles and Clothing 3420</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CIDH 3280</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CIDH 3255-56</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Home Economics 3510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 \collateral Area Electives</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>CIDH 4320</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CIDH 4110</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CIDH 3510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CIDH 4130</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CIDH 4155-56</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Textiles and Clothing 5220</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Art 3745</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL: 191 Hours

| Natural Science Electives (12 hour sequence) from one of the following sequences: Biology 1210-20-30; Chemistry 1510-20-30; Physics 1410-20-30; Botany 1110-20, 1140.
| Art History and/ or | 4 |
| Art Education Electives | 7 |
| CIDH Craft Electives (Beginning and Advanced) including 8 hours in area of concentration | 16 |

TOTAL: 190 Hours

OPTION 3. GENERAL CRAFTS

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 1510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Home Economics 1520</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Chemistry 1510-20-30</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Art 1815-25</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Art History Elective</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Psychology 2500</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CIDH 1419</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 2510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>English 2510-20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Sociology 1510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CIDH 2210</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Art 1115-25-35</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Economics 2110-20</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>CIDH 3130</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CIDH Craft Electives (Beginning)</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 3510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CIDH 4410</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Art Education 4150</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Art 2515 or 2415</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CIDH 3110</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Speech 2311 or Journalism 2210</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CIDH Craft Electives</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>16 or 17</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL: 190 Hours

OPTION 4. CRAFTS SPECIALIZATION (Fiber, Metal, Wood and Clay)

<table>
<thead>
<tr>
<th>Freshman</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 1510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Home Economics 1520</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Chemistry 1510-20-30</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Art 1815-25</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Art History Elective</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Psychology 2500</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CIDH 1419</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 2510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>English 2510-20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Sociology 1510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CIDH 2210</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Art 1115-25-35</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Economics 2110-20</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>CIDH 3130</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>CIDH Craft Electives (Beginning)</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 3510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CIDH 4410</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Art Education 4150</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Art 2615 or 2415</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CIDH 3110</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Speech 2311 or Journalism 2210</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CIDH 4140</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>CIDH Craft Electives (Beginning and Advanced) including 8 hours in area of concentration</td>
<td>16</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL: 190 Hours

Senior Hours Credit
| CIDH 4130 | 3 |
| CIDH 4310 | 3 |
| Art History and/or | 4 |
| Art Education Electives | 7 |
| CIDH Craft Electives (Beginning and Advanced) including 8 hours in area of concentration | 16 |
| Humanities and Social Science Electives | 8 |
| Electives | 12 or 13 |

TOTAL: 190 Hours

Professional Curricula in the Department of Food Science, Nutrition, and Food Systems Administration

Entering freshmen interested in Options 1, 2, 3, or 4 will be enrolled as departmental majors and a departmental adviser will be assigned to assist with planning freshman courses. Students will not register in a particular option until their third quarter in residence. They will apply for admission to a specific option by April 1. Designation of an option for each applicant will be made by a faculty committee by May 15, and each student will be assigned to an adviser associated with the chosen option. A second choice of option will be required if Option 4 is the first choice. If a student is listed as an alternate for first choice of option, admission may be reconsidered at a later date. Applications may be considered periodically as openings occur.

Transfer students must apply to the Director of Admissions and be admitted to the University of Tennessee, Knoxville, before initiating the application procedure for admission to Options 1, 2, 3, or 4.

OPTION 1. FOOD SCIENCE

The food science curriculum is concerned with relating the cultural and scientific aspects of food science to people and their environment. Emphasis is placed on the application of the social sciences to world food problems, consumer reaction to food acceptability and marketing problems; application of the physical sciences is made in the study of food composition and properties and changes associated with processing, preparation, and storage. This curriculum prepares students for positions in food product development and evaluation in industry and government, work in communications media or for direct entrance into a Master’s degree program needed for college teaching and research. Information concerning modifications necessary to meet academic requirements of the American Dietetic Association is available from the department.

Freshman Hours Credit
| Chemistry 1110-20-30 or 1510-20-30 | 12 |
| English 1510-20 | 8 |
| Food Science 1010 | 3 |
| Home Economics 1510 | 4 |
| Home Economics 1520 | 4 |
| Mathematics 1540-50 | 8 |
| Psychology 2500 | 4 |
| Electives | 4 |
Application and selection by a faculty committee required to enter Sophomore year.

**Sophomore**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics 2110, 2130</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>English 2510 or 2520 or 2530 or 2540</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Food Science 2510</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Home Economics 2510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Journalism 2210</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Microbiology 2010</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Zoology 2920-30</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

**Junior**

Child and Family Studies 3420 or 4210 or 4830: 3

Food Science 3500, 3510, 4010: 4

Home Economics 3510: 4

Nutrition 3310-20-30-39: 12

Electives in Social Science: 8

Electives: 12

**Senior**

Food Science 4000, 4040: 6

*Food Science 4020: 3

Nutrition 3410: 5

Elective in Food Science, Food Systems Administration or Food Technology: 3

Electives in Humanities: 8

Electives: 22

**TOTAL: 190 Hours**

*Or English 2560 or 2570 or 2580.

*Or 4800 or 4176 by arrangement with instructor.

**OPTION 2. NUTRITION SCIENCE**

This curriculum provides in-depth training in the basic biological sciences as well as nutrition. This option is designed for students who are interested in graduate study to become college teachers and researchers or who are interested in graduate study and/or a dietetic internship, to become a clinical nutrition specialist.

**Freshman**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 1110-20-30 or 1510-20-30</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Food Science 1010</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Home Economics 1510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Home Economics 1520</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Mathematics 1540</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Nutrition 1230</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Psychology 2500</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Sociology 1510</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Application and selection by a faculty committee required to enter Sophomore year.

**Sophomore**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economics 2110-20 or 30</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>English 2510 or 2520 or 2530 or 2540</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Home Economics 2510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Home Economics 2520</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Home Economics 2530</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Journalism 2210</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Nutrition 3310-20-30-39</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Physical Education Activity Elective</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Zoology 2920-30</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL: 188 Hours**

*Or English 2560 or 2570 or 2580.

**OPTION 3. COMMUNITY NUTRITION**

This curriculum is designed for those students interested in community services or graduate work in public health nutrition.

**Freshman**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 1110-20-30 or 1510-20-30</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Food Science 1010</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Home Economics 1510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Mathematics 1540</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Nutrition 1230</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Psychology 2500</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Sociology 1510</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

Application and selection by a faculty committee required to enter Sophomore year.

**Sophomore**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 2510 or 2520 or 2530 or 2540</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Home Economics 2510</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Nutrition 3410</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Plant and Soil Science 3610</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Public Health 3330</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

**Junior**

Anthropology 2530: 4

Educational Psychology 3110: 4

Food Science 3500: 4

Food Systems Administration 3320: 3

Home Economics 3510: 4

Microbiology 2010: 4

Nutrition 3410: 5

Plant and Soil Science 3610: 3

Zoology 3050-60, 3920: 13

Electives: 7

**TOTAL: 188 Hours**

*Or English 2560 or 2570 or 2580.

**OPTION 4. COORDINATED UNDERGRADUATE PROGRAM IN DIETETICS (ADA)**

The Coordinated Undergraduate Program in Dietetics is a generalist program, training entry-level dietitians in administrative and clinical dietetics, and is accredited by the American Dietetic Association (ADA). The program incorporates the equivalent of a five-year dietetic internship into a four-year academic curriculum. The curriculum includes a two-year preprofessional sequence that meets general education requirements and prerequisites for professional courses, and a professional phase in the junior and senior years. The junior year provides an introduction to dietetics, basic knowledge in food science, nutrition, and food systems administration, and research techniques. The senior or fourth year consists of advanced work in dietetics. During the professional phase, academic courses are coordinated with planned experiences in selected hospitals and community facilities.

**Admission and Progression Policies**

A student may be admitted to the program at any stage provided all requirements or equivalents of the program up to that time, as well as University of Tennessee and College of Home Economics standards, have been satisfactorily met. Preprofessional courses may be taken at the University of Tennessee, Knoxville, or any accredited junior or senior college or community college. The program has been planned to permit transfer students to apply prior to the beginning of the junior year. Applications should be made to the Program Director by April 1.

Criteria for selection include: (1) evidence that the student will successfully complete the two-year preprofessional phase; (2) an overall GPA of 2.2 or higher; (3) personal interview; and (4) recommendations from faculty of selected preprofessional courses. The number of qualified students accepted into the Coordinated Undergraduate Program in Dietetics is contingent on the number of clinical sites available. Criteria for admission must be maintained throughout the preprofessional phase. Exception to criteria may be made by petition to the Program Director. Criteria for progression in the professional phase junior and senior years will include: (1) satisfactory completion of each required professional course as scheduled with a minimum grade of C; (2) periodic evaluation of competency-level by academic and clinical faculty; (3) periodic evaluation of professional competency by peers; and (4) participation in voluntary professional activities. The maximum credit hours per quarter carried should not exceed 18 hours without special permission from the Program Director. Exceptions to the above may be made by petition to the Program Director.

Upon satisfactory completion of the program, students receive the Bachelor of Science Degree in Home Economics, and are eligible for membership in the American Dietetic Association and to apply for the registration examination to qualify as a Registered Dietitian (R.D.).
A student unable to enter or to complete the Coordinated Undergraduate Program in Dietetics (Option 4) may select Food Science (Option 1), Nutrition Science (Option 2), or Community Nutrition (Option 3) to fulfill the academic requirements for a dietetic internship or traineeship. Upon completion of the academic requirements and the dietetic internship or traineeship, students would be eligible for membership in the American Dietetic Association and to apply for the registration examination to qualify as a Registered Dietitian (R.D.).

**Freshman**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 1510-20-30</td>
<td>12</td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
</tr>
<tr>
<td>Food Science 1010</td>
<td>4</td>
</tr>
<tr>
<td>Home Economics 1510-20</td>
<td>8</td>
</tr>
<tr>
<td>Mathematics 1540</td>
<td>4</td>
</tr>
<tr>
<td>Sociology 1510</td>
<td>4</td>
</tr>
<tr>
<td>Psychology 2500</td>
<td>3</td>
</tr>
<tr>
<td>Speech 2311 or Journ. 2210</td>
<td>4 or 3</td>
</tr>
</tbody>
</table>

Application and selection by a faculty committee required to enter sophomore year.

**Sophomore**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 2510</td>
<td>4</td>
</tr>
<tr>
<td>Nutrition 2000-3330</td>
<td>8</td>
</tr>
<tr>
<td>English 2510 or 2520</td>
<td>9</td>
</tr>
<tr>
<td>Food Science 2510</td>
<td>4</td>
</tr>
<tr>
<td>Microbiology 2510</td>
<td>4</td>
</tr>
<tr>
<td>Zoology 2920-30</td>
<td>8</td>
</tr>
<tr>
<td>Economics 2110, 2130</td>
<td>6</td>
</tr>
<tr>
<td>Accounting 2210 or Computer Science 1410 or Plant and Soil Science 3610</td>
<td>3</td>
</tr>
<tr>
<td>Statistics 2100</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>7-8</td>
</tr>
</tbody>
</table>

**Junior**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Science 3020-21, 3510, 4010</td>
<td>10</td>
</tr>
<tr>
<td>Nutrition 3410-11, 3920, 4230-31</td>
<td>12</td>
</tr>
<tr>
<td>Food Systems Administration 3110, 3920, 4150</td>
<td>9</td>
</tr>
<tr>
<td>Home Economics 3510</td>
<td>9</td>
</tr>
<tr>
<td>Psychology 4460 or Economics 3420</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>13</td>
</tr>
</tbody>
</table>

**Senior**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropology 4250</td>
<td>3</td>
</tr>
<tr>
<td>Food Systems Administration 4130, 4140, 4250</td>
<td>9</td>
</tr>
<tr>
<td>Food Systems Administration 4410, 4420, 4430</td>
<td>9</td>
</tr>
<tr>
<td>Food Science Administration 4421</td>
<td>8</td>
</tr>
<tr>
<td>Nutrition 4240-41, 4030-31</td>
<td>11</td>
</tr>
<tr>
<td>Nutrition 4440</td>
<td>4</td>
</tr>
<tr>
<td>Food Science 4000</td>
<td>3</td>
</tr>
</tbody>
</table>

**TOTAL: 190 Hours**

<table>
<thead>
<tr>
<th>OPTION 5. FOOD AND LODGING ADMINISTRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>The food and lodging administration curriculum is concerned with meeting the expressed top management needs of the food and lodging industry. This curriculum will provide a professional program for both men and women which will assist students to gain broad areas of knowledge, perspective, flexibility, and creativity to meet the changing environment of complex management problems in the food and lodging industry of today.</td>
</tr>
</tbody>
</table>

**Freshman**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Science Electives</td>
<td>12</td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
</tr>
<tr>
<td>Home Economics 1510-20</td>
<td>8</td>
</tr>
<tr>
<td>Mathematics 1540-50</td>
<td>8</td>
</tr>
<tr>
<td>Food Science 1010</td>
<td>3</td>
</tr>
<tr>
<td>Food Systems Administration 2910</td>
<td>3</td>
</tr>
<tr>
<td>Economics 2110</td>
<td>3</td>
</tr>
<tr>
<td>Nutrition 1230</td>
<td>3</td>
</tr>
</tbody>
</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistics 2110</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 2510</td>
<td>4</td>
</tr>
<tr>
<td>English 2510 or 2520 or 2530 or 2540</td>
<td>4</td>
</tr>
<tr>
<td>Microbiology 2010</td>
<td>4</td>
</tr>
<tr>
<td>Accounting 2110-20</td>
<td>6</td>
</tr>
<tr>
<td>Food Systems Administration 3210</td>
<td>5</td>
</tr>
<tr>
<td>Sociology 1510</td>
<td>4</td>
</tr>
<tr>
<td>Psychology 2520 or 2530</td>
<td>4</td>
</tr>
<tr>
<td>Food Systems Administration 3110</td>
<td>4</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
</tbody>
</table>

**Junior**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Science 4000 or 4040 or 2510</td>
<td>3</td>
</tr>
<tr>
<td>Food Systems Administration 4130, 4150, 4250</td>
<td>9</td>
</tr>
<tr>
<td>Crafts, Interior Design &amp; Housing 3110</td>
<td>3</td>
</tr>
<tr>
<td>Economics 3420</td>
<td>3</td>
</tr>
<tr>
<td>Textiles &amp; Clothing 3300</td>
<td>3</td>
</tr>
<tr>
<td>Marketing 3110-20</td>
<td>6</td>
</tr>
<tr>
<td>Accounting 2210</td>
<td>3</td>
</tr>
<tr>
<td>Computer Science 1410</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>14</td>
</tr>
</tbody>
</table>

**Senior**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Economics 3510</td>
<td>4</td>
</tr>
<tr>
<td>Food Systems Administration 4260</td>
<td>4</td>
</tr>
<tr>
<td>Business Law 4110</td>
<td>4</td>
</tr>
<tr>
<td>Food Systems Administration 4140</td>
<td>3</td>
</tr>
<tr>
<td>Food Systems Administration 4270</td>
<td>3</td>
</tr>
<tr>
<td>Food Systems Administration 4210</td>
<td>15</td>
</tr>
<tr>
<td>Electives</td>
<td>15</td>
</tr>
</tbody>
</table>

**TOTAL: 190 Hours**

<table>
<thead>
<tr>
<th>Professional Curriculum in Vocational Home Economics Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>The curriculum in vocational home economics education is planned in cooperation with the College of Education. Successful completion of the requirements of this curriculum results in recommendation for certification to teach vocational home economics in secondary schools in Tennessee.</td>
</tr>
<tr>
<td>Total requirements for admission to teacher education, to student teaching and for Recommendation for Certification are listed on page 94. The State Board for Vocational Education and the United States Office of Education approve programs for vocational education: Only students who have a major in the vocational home economics education curriculum meet certification requirements; students who have a major in other curricula in the College of Home Economics do not meet certification requirements.</td>
</tr>
<tr>
<td>All freshman, sophomore, and junior required courses must be completed before a student engages in student teaching. Home Economics Education 4240 should be scheduled within one of the two quarters immediately preceding the quarter in which student teaching is scheduled. This curriculum will prepare students for graduate study in home economics education; however, it is not a requirement for graduate study in home economics education.</td>
</tr>
</tbody>
</table>

**Freshman**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 1510-20-30</td>
<td>12</td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
</tr>
<tr>
<td>Food Science 1010</td>
<td>3</td>
</tr>
<tr>
<td>Home Economics 1010</td>
<td>3</td>
</tr>
<tr>
<td>CFS 1120</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics elective</td>
<td>3</td>
</tr>
<tr>
<td>P.E. &amp; Health electives</td>
<td>3</td>
</tr>
<tr>
<td>CIDH 1410</td>
<td>3</td>
</tr>
<tr>
<td>Speech electives</td>
<td>2</td>
</tr>
<tr>
<td>Text &amp; Cls. 1160</td>
<td>3</td>
</tr>
<tr>
<td>Text &amp; Cls. 1165</td>
<td>3</td>
</tr>
</tbody>
</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFS 2110</td>
<td>3</td>
</tr>
<tr>
<td>Economics electives</td>
<td>6</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
</tr>
<tr>
<td>H. Educ. 2240</td>
<td>3</td>
</tr>
<tr>
<td>Humanities electives</td>
<td>8</td>
</tr>
<tr>
<td>Literature elective</td>
<td>4</td>
</tr>
<tr>
<td>Psychology 2560</td>
<td>4</td>
</tr>
<tr>
<td>Social Science electives</td>
<td>6</td>
</tr>
<tr>
<td>Zoology 2920-20</td>
<td>8</td>
</tr>
</tbody>
</table>

**Junior**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFS 3210, 3510</td>
<td>6</td>
</tr>
<tr>
<td>Ed. C &amp; 1 3029-30*</td>
<td>6</td>
</tr>
<tr>
<td>Education electives</td>
<td>3</td>
</tr>
<tr>
<td>Ed. Psych. 3810</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>12</td>
</tr>
<tr>
<td>Food Science 3020</td>
<td>4</td>
</tr>
<tr>
<td>H. Educ. 3430</td>
<td>4</td>
</tr>
<tr>
<td>CFS 3420 or 4210 or 4830</td>
<td>3</td>
</tr>
<tr>
<td>Nutrition 3050</td>
<td>3</td>
</tr>
<tr>
<td>CIDH 3110</td>
<td>3</td>
</tr>
<tr>
<td>Text &amp; Cls. 3420</td>
<td>3</td>
</tr>
</tbody>
</table>

**Senior**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electives</td>
<td>12</td>
</tr>
<tr>
<td>H. Educ. 4240</td>
<td>4</td>
</tr>
<tr>
<td>H. Educ. 4310, 4610</td>
<td>15</td>
</tr>
<tr>
<td>CIDH 4320</td>
<td>3</td>
</tr>
<tr>
<td>CFS 4440</td>
<td>4</td>
</tr>
<tr>
<td>Nutrition 4505</td>
<td>4</td>
</tr>
<tr>
<td>CIDH 4410</td>
<td>4</td>
</tr>
<tr>
<td>Text &amp; Cls. 3440</td>
<td>3</td>
</tr>
</tbody>
</table>

**TOTAL: 190 Hours**

*3-14 hours of electives can be used for additional endorsement in one of two options in occupational areas: Option 1. Food Services, or Option 2. Child Care Services. If occupational endorsement is not sought, 9 hours of electives are to be selected in additional home economics subject matter. *See page 96 for humanities requirements. *Choose courses in history, anthropology, geography, political science, sociology, or Child and Family Studies 2110. *Requires admission to Teacher Education Program.

**OPTION 1. FOOD SERVICES ENDORSEMENT**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Science 2510</td>
<td>3</td>
</tr>
<tr>
<td>Food Systems Administration 3110</td>
<td>5</td>
</tr>
<tr>
<td>Food Systems Administration 3230</td>
<td>2</td>
</tr>
<tr>
<td>H. Educ. Education 4509</td>
<td>4</td>
</tr>
</tbody>
</table>

**OPTION 2. CHILD CARE AND GUIDANCE ENDORSEMENT**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFS 3110, 3120</td>
<td>6</td>
</tr>
<tr>
<td>CFS 4420 or 4610</td>
<td>3</td>
</tr>
<tr>
<td>HEED 4509</td>
<td>4</td>
</tr>
</tbody>
</table>

**OPTION 3. CLOTHING MANAGEMENT, PRODUCTION AND SERVICES ENDORSEMENT**

<table>
<thead>
<tr>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text &amp; Cls. 3460 or 3470 or 4240</td>
<td>3 or 4 hours</td>
</tr>
<tr>
<td>Text &amp; Cls. 2110 or 3510*</td>
<td>3 hours</td>
</tr>
<tr>
<td>Text &amp; Cls. 4010 or 4120</td>
<td>3 hours</td>
</tr>
<tr>
<td>Home Ec. Education 4509</td>
<td>8 hours</td>
</tr>
</tbody>
</table>

*Recommended Course
Professional Curriculum in Textiles and Clothing

OPTION 1. MERCHANDISING
This curriculum is appropriate for students wishing to prepare for positions in merchandising of apparel and/or fabrics, fashion writing, and in public relations with pattern companies and manufacturers of textile products.

Freshman  Hours  Credit
Chemistry 1510-20-30, or 1110-20-30 ........................................... 12
English 1510-20 ........................................................................... 8
Home Economics 1510 ................................................................. 4
Psy  ................................................................................................ 4
Home Economics 1520 ................................................................. 4
Text. & Clo. 1160 ..................................................................... 2
Text. & Clo. 1165 ..................................................................... 3
Text. & Clo. 3110 ..................................................................... 2
Sociology 1510 ......................................................................... 4
Elective ......................................................................................... 6
Sophomore  Hours  Credit
Chemistry 3211-19 or Nutrition 3310 ........................................... 4
*English 2510 or 2520 or 2530 or 2540 (Choose two) .... 6
Home Economics 2510 ................................................................. 4
Mathematics 1540-50-60 or 1840-50-60 ................................. 12
Sociology 1510 ......................................................................... 4
Text. & Clo. 3420 ..................................................................... 4
Zoology 2920-30 ...................................................................... 8
Electives ......................................................................................... 6
Junior
Economics 2110, 2130 ................................................................ 6
*Humanities Electives ................................................................. 3
Journalism 2210 ........................................................................ 3
Physics 2210-20 or 1210-20 ...................................................... 8
Statistics 2210 or 3450 ............................................................... 3
*Home Economics 3510 .............................................................. 4
Electives ......................................................................................... 15
Senior
CFS 4380 ................................................................................ 3
CIDH 2430, 3130 ................................................................... 6
Text. & Clo. 3440, 3450, 3480, 5220 (Choose Three) .......... 9
Text. & Clo. 4220 ..................................................................... 4
Text. & Clo. 4100, 4120, 4140, 4210 ....................................... 12
Electives ......................................................................................... 14
TOTAL: 191 Hours

*Or English 2560 or 2570 or 2580
*At least 3 hours must be upper division courses.
*Eight hours sequence from foreign language or philosophy or history or art history or music.

Graduate Study Programs in the College of Home Economics

Graduate study programs lead to the degree of Master of Science with a major in child and family studies; consumer studies and housing; public policy; crafts, interior design, and housing; food science; food systems administration; home economics education; nutrition; and textiles and clothing. Graduate study programs lead to the degree of Doctor of Philosophy in Home Economics with three options: Interdisciplinary, Food Science, and Nutrition. Food systems administration may be taken as a concentration in the food science doctoral option. Graduate programs provide advanced specialized training as needed in each area for College and University teaching, for leadership positions in governmental and professional agencies and in the various professions in business, for secondary school and adult teaching, for research and for extended services. Information regarding graduate assistantships, fellowships, and general requirements for admission to graduate study may be obtained from the department head in the area of the student’s major interest or the Dean of the College of Home Economics for the Interdisciplinary doctoral option.

An application for admission and two official transcripts should be submitted directly to the Graduate School. In addition, application is made to the Dean of the College of Home Economics. Those students desiring to major in child and family studies, the interdisciplinary doctoral option, or home economics education are required to take the Graduate Record Examination.

For a complete description of the Graduate Program in the various areas of home economics, see the Graduate School Catalog, including the list of available major and minor areas.

Departments of Instruction

Numbers in parentheses following the course titles indicate quarter hours credit offered.

Child and Family Studies (245)

Professors:
J.L. Kulpers (Head), Ph.D. Michigan State;
C. Beasley (Emeritus), Ed.D. Columbia;
M.L. Bishop (Emeritus), Ph.D. Cornell;
R.L. Hightberger, Ph.D. Iowa; E.L. Speer (Emeritus), M.A. Columbia.

Associate Professors:
J.L. Cunningham, Ph.D. Michigan State;

Assistant Professors:
M.F. Kainowsky, Ph.D. Massachusetts;

Instructors:
A.E. Henderson, M.S. Cornell; N. Rieman, M.S. Kansas State.

1120 Management and Its Contribution to Family Living (3) Decision-making process, relationships among decisions, principles of organization for implementing decisions; evaluation procedures; factors affecting management process; application of management principles to the family, school and peer group settings. 3 hrs. An additional lab (2 hrs) for majors.

2110 Human Socialization (3) Human development with emphasis on socialization process from infancy through adolescence in family, school and peer group settings. 3 hrs. An additional lab (2 hrs) for majors.

2120 Male-Female Relations (3) Examination of issues and development of communication skills and roles involved in relating to opposite sex. (Not open to majors.)

2410 Human Sexuality (3) Dimensions of human sexuality as examined through cultural, social, and psychological influences.

3110 Program Planning (4) Philosophies of preschool education. Analysis of program and teacher-child interaction. Observation-Measurement Laboratory. Prereq: 3210 or equivalent. 3 hours and 1 lab.

3120 Aesthetic Experiences (3) Examination of subject matter areas—quantity and logic, art, music, literature, science. Prereq: 3110.

3125 Day Care Programming for Infants and Preschool Children (3) Program planning for children from early infancy through six years in day care environments. Prereq: 3210 or equivalent.

3210 Child Development I (3) Comprehensive view of the child 2 to 8 years of age. Analysis of interrelationships among various aspects of development: physical, cognitive, emotional and social. Prereq: 2110 or Home Economics 1510 or 3 hours psychology. 3 hrs. 1 hour observation per week.
4620 Administration of Programs for Young Children (3) Planning for staffing, housing, feeding, scheduling, and financing for day care of infants and young children, nursery school programs, and specialized programs for deprived preschool children. Prereq: 3110 or 3130 or 4110.

4630 Field Work In Child, Family and Consumer Studies (3-15) Opportunity for student to work in nursery schools or community agencies; focus on children, families, and/or consumer concerns. Hrs. arranged. May be repeated. Maximum credit 15 hours.

4710 Contemporary Developments (1-3) Student or staff initiated course for study of special topic(s) pertinent to the field; topics selected to be determined by students and instructor with departmental approval. Elective credit only. Prereq: permission of instructor. May be repeated with departmental approval for credit up to 9 hrs.

4810 Afro-American Families (3) Historical background, contemporary family structure and relationships; emerging needs and programs. Prereq: 4 hrs in social sciences and upper division standing. (Same as Black Studies 4810.)

4830 Consumers and the Market (3) Factors important to homemakers as family purchasing agents; standardization and pricing of goods; grading, branding, labeling; advertising; consumer practices affecting costs; specific household commodity information.

4978 Honors: Child, Family and Consumer Studies (3) Individual special problems for juniors and seniors showing special ability and interests. May be repeated. Maximum credit 9 hours.

GRADUATE
5000 Thesis
5002 Non-Thesis Graduation Completion (3)
5060 Practicum (1-12)
5110 Field Work In Family Life (3)
5140 Consumption and Standards of Living (3)
5150 Assessment of Family Behavior (3)
5160 Management of Time and Energy in the Home (3)
5170 Consumer Economics (3)
5180 Family Financial Consultation (3)
5190 Standards in Consumer Protection (3)
5210 Theories of Child Development (3)
5220 Family Life Programs (3)
5310 Theory and Research on Human Sexuality (3)
5410 Advanced Family Relationships (3)
5420 Parents and Children (3)
5430 Families in Crisis (3)
5510 Survey of Research In Child and Family Studies (3)
5530 Research Methods in Child and Family Studies (3)
5540 Preschool Curriculum Models (3)
5550 Supervision in Preschool Programs (3)
5610 Theories of Management in the Family Environment (3)
5620 Nursery School Administration (3)
5630 Seminar In Infant Development (3)
5640 Teaching Child and Family Studies (5)
5700 Current Programs and Trends in Child and Family Studies (1-3)
5800 Problems In Child, Family, and Consumer Studies (1-3)
eral awareness of immediate environment, Prereq: or coreq: Home Economics 1520. Required of students specializing in crafts and interior design.

2110 Fundamentals of Interior Design (3) Drawing skills, symbols, terminology, and others used in interior design. Prereq: 1410. 1 hr and 2 lab.

2111 Design of Interior Spaces (3) Interior design in two and three dimensions, additional emphasis on symbols, tools and design terminology. Prereq: 2110 or consent of instructor. 1 hr and 2 labs.

2112 Color in Interior Design (3) Application of color to the interior; development of skills for various media and tools used in color planning; effects of color on the interior. Prereq: 2111 or consent of instructor. 2 hrs and 1 lab.

2115 Fundamentals of Interior Design I (6) Introduction to basic drafting techniques, symbols and terminology used in interior design presentations.

2116 Fundamentals of Interior Design II (6) Residential space planning of micro-environments with special emphasis on perspective and rendering techniques as a means of communication of design solutions. Opportunity for individual experimentation.

2210 Creative Design (4) Comparison and criticism of design solutions for individual students. Emphasis on the limits of appropriateness; appreciation of basic art principles in selecting and combining objects; original design with elements, space, color, and methods for creating effective designs. Prereq: 1410 or equivalent. 1 hr and 2 labs.

2430 Equipment in the Home (3) Principles underlying operation and construction of household equipment; processes and supplies involved in using and caring for equipment; recent developments in estimation of costs, simple maintenance. 1 hr and 2 labs.

3110 Beginning Interior Design (3) Individual and design factors influencing selection, arrangement and combination of furnishings to derive the greatest satisfaction from homes and places of work. Prereq: 1410 or equivalent. 1 hr and 2 labs.

3120 Historic Interiors (3) Furniture and interiors of the past as influenced by social, economic and political background, recent adaptations of historic design.

3125 Historic Interiors (5) Survey of the history of interior design and decorative arts of various cultures. Emphasis on stylistic analysis and relation of design to cultural, economic, and political factors.

3130 Color (3) Experimentation in color systems and their significance to the home economist. Effective use of color sources in display, costume, and interior design for personality expression. 1 hr and 2 labs.

3250 Residential Interiors I (3) Studio work dealing with limited living areas; efficiency apartments, mobile homes; design analysis and planning. Prereq: 2112 or consent of instructor. 1 hr and 2 labs.

3251 Residential Interiors II (3) Residential interiors, floor plans and perspectives; emphasis on interior design as related to the client. Prereq: 3250 or consent of instructor. 1 hr and 2 labs.

3252 Commercial Interiors (3) Understanding relationship of interior spaces to commercial structures such as offices and shops; commercial design analysis and planning. Prereq: 3251 or consent of instructor. 1 hr and 2 labs.

3255 Residential Interiors I (6) Design of single family residential structure based on analysis of occupational and environmental needs; includes production of detailed construction drawings; specification of interior furnishings and finishing materials. Prereq: 1161 or permission of instructor.

3256 Residential Interiors II (6) Studio problems dealing with residential interiors other than single family detached dwelling; includes: high-rise apartment condominium, hotel, dormitory, remodeling existing structures, etc. Emphasis on working with individual's and/or family's specific needs and budget. Prereq: 3255 or permission of instructor.

3260 Professional Procedures (3) Preparation of interior design majors for in-field training. Emphasis on business practices and procedures as related to interior design. Prereq: Junior standing, interior design majors, and consent of department.

3310 Metal Design I (4) Experimenting with metals and techniques stressing relationship of design to function, processes, materials and use of tools. Prereq: 1410 or equivalent. 1 hr and 2 labs.

3320 Metal Design II (4) Principles of metal design; possibilities and limitations of metal materials, techniques, tools and equipment. Relationship of design to process; imaginative use of art elements in metal design. 1 hr and 2 labs.

3330 Metal Design III (4) Advanced experiences in metalwork, emphasizing relationship of design to process and imaginative use of art elements in metal design. Prereq: 3320 or equivalent. 1 hr and 2 labs.

3410 Weaving I (4) Creative design in elementary weaving techniques in a variety of looms, basic weaves and threads. Interpreting and creating drafts; designing warps for various materials, assembling a loom and threading and tie-up of a loom, methods of finishing. Study of weaving of past and present. Prereq: 1410 or equivalent. 1 hr and 2 labs.

3420 Weaving II (4) Same as 3410 except designing, techniques and processes are explored in rug weaving. 1 hr and 2 labs.

3430 Weaving III (4) Advanced weaving techniques with exploration of pattern, color and texture using various warp and weft materials. Further study of weaving, past and present. Prereq: 3410 or 3420 or equivalent. 1 hr and 2 labs.

3440 Demonstration Techniques in Household Equipment (3) Planning and presenting equipment demonstrations emphasizing performance, maintenance and cost; developing and using visual aids. Prereq: Speech 2311. 1 hr and 2 labs.

3510 Textile Design (4) Fundamental principles of textile design, using a wide range of processes and materials. Emphasis on silkscreen and blockprint methods. Prereq: 1410 or equivalent.

3520 Textile Design (4) Study of resist processes in textile design, Foil dye, batik, and resin resist methods are emphasized. Works of contemporary designers in the field are discussed, as well as examples from the past. Prereq: 1410 or equivalent.

3530 Fabric Structures (4) Design and construction of fabric structures through use of non-weaving processes: loopng, interlocking, colling, inter-knotting, interlinking, and twining. Investigation of non-weaving processes utilized in development of fabric structures. Study of various historical and traditional aspects of these processes and their relationship to their potential in designing contemporary fabric forms. Prereq: 1410 or equivalent. May be repeated. Maximum credit 12 hours.

3610 Wood Design (4) Basic skills and appreciation for design developed through wood carving and the making of small household objects and toys. Prereq: 1410 or equivalent. 1 hr and 2 labs.

3620 Wood Design (4) Continuation of 3610. 1 hr and 2 labs.

3710 Enameling I (4) Exploring possibilities and limitations of vitreous enamels. Designing and creating enamelled metalwork and jewelry using a variety of materials and techniques. Contemporary and past enameling. Prereq: 1410 or equivalent. 1 hr and 2 labs.

3720 Enameling II (4) Advanced techniques; exploration of enamel; development of original enamels. Further study of art of enamelist, past and present. Prereq: 3710 or equivalent. 1 hr and 2 labs.

4110 Home Wiring and Lighting Requirements (3) Service of electricity in modern homes; evaluation of lighting and wiring plans in terms of family desires and need for equipment. 1 hr and 2 labs.

4130 Contemporary Design (3) Furnishings and interiors; economics, technological and sociological influences on development of design; changing life style conditions, interrelation of architecture and furnishings. Significant designers and their work.

4140 Exhibition Design (4) Display of craft and interior design problems and in relation to materials, props, and special exhibition area. Emphasis on knowledge and application of design principles as they relate to promotion, design construction, display and evaluation for two and three dimensional display. Annual student craft and interior design exhibition culminates quarter. Prereq: 1410 or equivalent.

4150 Interior Space Planning I (3) Studies in large scale commercial interior design; apartment houses, office buildings, Junior housing, interior design factors that influence design of concentrated and mass spaces. Prereq: 3522 or consent of instructor. 1 hr and 2 labs.

4151 Interior Space Planning II (3) People as related therapeutic values of spaces. Place of craftsmanship and homes, trains, ships; relationship of design to materials and movements of people in their environment. Prereq: 4150 or consent of instructor. 1 hr and 2 labs.

4152 Interior Space Planning III (3) Interior design evaluation as related to contemporary technology and materials with emphasis on urban planning. Emphasis on individual projects. Prereq: 4150 and consent of instructor. 1 hr and 2 labs.

4155 Interior Space Planning I (6) Analysis, planning and design of interior spaces. Emphasis includes contract furniture. Prereq: 3526 or equivalent.

4156 Interior Space Planning II (8) Studio problems involving large scale non-residential interior spaces such as restaurants, transportation facilities, stores, institutions, etc. Prereq: 4155 or permission of instructor.

4260 Professional Practice (15) Supervised field experience in establishments engaged in practice of interior design. Prereq: Professional Practice (15). May be repeated. Maximum credit 30 hours.

4300 Crafts in America (3) Craft movement; factors that contribute to growth and development. Educational, social, economic, recreational and philanthropic aspects of craft organizations. Prereq: 1410 or equivalent.

4320 Family Housing Problems (3) Housing requirements of families. Reading and judging house plans, effective use of space; maintenance problems; housing regulations and restrictions; site selection and neighborhood development; financing procedures. Prereq: 6 hrs from Economics 2110-20-30.

4330 Care and Repair of Household Equipment (3) Care of equipment to give maximum service in relation to operation and service cost; understanding of common repair problems. Prereq: 2430. 1 hr and 2 labs.

4410 Craft Media (4) Possibilities and limitations of variety of craft media; understanding educational and social values of craft work. Designing and executing craft problems using inexpressive materials and tools. 3 labs.

4420 Leather Design (4) Relationship to design function, techniques and use of leather and leather objects of original design. Prereq: 1410 or equivalent. 1 hr and 2 labs.

4430 Plastics (4) Possibilities and limitations of various plastics; methods of fabrication; relation of design to function, techniques and use of tools. Prereq: 1410 or equivalent. 1 hr and 2 labs.

4510 Ceramics I (4) Possibilities and limitations of clay, techniques and use of tools. Designing and making pottery forms using coil, slab and throwing techniques; decorating by slip, underglaze, sgraffito, incising and embossing; preparation of simple glazes; setting and firing kilns. Prereq: 1410 or equivalent. 1 hr and 2 labs.
4520 Ceramics II (4) Further study in designing, building, decorating, preparing glazes and firing. Role of the potter, past and present. Prereq: 4510 or equivalent. 1 hr and 2 labs.

4530 Ceramics III (4) Advanced design and relation to function, materials, tools and techniques. Further study of history of pottery and contributions of contemporary ceramist to art, architecture and interior design. 1 hr and 2 labs.

4610 Studio Problems in Interior Design (3) Problems for seniors with special ability and interest in interior design. May be repeated to a maximum of 9 hrs. Prereq: Senior standing and permission of department.

4620 Studio Problems in Leather Design (4) Problems for juniors and seniors with special ability and interest in leather design. May be repeated to a maximum of 12 hrs. Prereq: 12 hrs of leather design or equivalent and permission of department.

4630 Studio Problems in Metal Design (4) Problems for juniors and seniors with special ability and interest in metal design. May be repeated to a maximum of 12 hrs. Prereq: 12 hrs of metal design or equivalent and permission of department.

4640 Studio Problems in Weaving (4) Problems for juniors and seniors with special ability and interest in weaving. May be repeated to a maximum of 12 hrs. Prereq: 12 hrs of weaving or equivalent and permission of department.

4650 Studio Problems in Textile Design (4) Problems for juniors and seniors with special ability and interest in textile design. May be repeated to a maximum of 12 hrs. Prereq: 8 hrs of textile design or equivalent and permission of department.

4655 Studio Problems in Fabric Structures (4) Advanced problems in fabric structures for juniors and seniors with special ability and interest in fabric structures. May be repeated to a maximum of 12 hrs. Prereq: 12 hrs of fabric structures or equivalent and permission of department.

4660 Studio Problems in Wood Design (4) Problems for juniors and seniors with special ability and interest in wood design. May be repeated to a maximum of 12 hrs. Prereq: 8 hrs of wood design or equivalent and permission of department.

4670 Studio Problems in Enameling (4) Problems for juniors and seniors with special ability and interest in enameling. May be repeated to a maximum of 12 hrs. Prereq: 8 hrs of enameling or equivalent and permission of department.

4680 Studio Problems in Plastics (4) Problems for juniors and seniors with special ability and interest in plastics. May be repeated to a maximum of 12 hrs. Prereq: 4 hrs of plastics or equivalent and permission of department.

4690 Studio Problems in Ceramics (4) Problems for juniors and seniors with special ability and interest in ceramics. May be repeated to a maximum of 12 hrs. Prereq: 12 hrs of ceramics or equivalent and permission of department.

4710 Contemporary Developments (1-4) Student or staff initiated course for study of special topic(s) pertinent to the field, topics selected to be determined by students and instructor with departmental approval. Elective credit only. May be repeated with permission of department. Maximum credit 12 hours. Prereq: Permission of instructor.

4968 Honors: Crafts (1-4) Problems for juniors and seniors with special ability and interest in crafts. Hours arranged. May be repeated. Maximum credit 12 hours. Prereq: Permission of department head.

4978 Honors: Interior Design (1-3) Problems for juniors and seniors with special ability and interest in interior design. Hours arranged. May be repeated. Maximum credit 9 hours. Prereq: permission of department head.

4988 Honors: Housing (1-3) Problems for juniors and seniors with special ability and interest in housing. Hours arranged. May be repeated. Maximum credit 9 hours. Prereq: permission of department head.

4998 Honors: Equipment (1-3) Problems for juniors and seniors with ability and interest in equipment. Hours arranged. May be repeated. Maximum credit 9 hours. Prereq: permission of department head.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5040 Seminar in Design (3)

5050 Advanced Design Studio (4)

5060 Practicum (1-12)

5120 Historic Interior Design (3)

5210 Furniture Appreciation (3)

5310 Interior Design (3)

5330 Craft Design (3)

5341-51-61 Metal Design I, II, III (4, 4, 4)

5342-52-62 Weaving I, II, III (4, 4, 4)

5343-53-63 Textile Design I, II, III (4, 4, 4)

5344-54-64 Wood Design I, II, III (4, 4, 4)

5345-55-65 Enameling I, II, III (4, 4, 4)

5346-56-66 Plastics I, II, III (4, 4, 4)

5347-57-67 Ceramics I, II, III (4, 4, 4)

5350-60-70 Fabric Structures I, II, III (4, 4, 4)

5368 Ceramics-Glaze Calculation (4)

5369 Ceramics-Kiln Construction (4)

5410 Advanced Problems (3)

5510 Environmental Factors In Interior Design (3)

5520 Environmental Factors In Interior Design (3)

5530 Environmental Factors In Interior Design (3)

5610 Furniture Design (3)

5613 Housing Management (3)

5614 Housing Regulations and Controls (3)

5615 Housing Programs and Policies (3)

5620 Experimental Methods In Household Equipment (3)

5630 Environmental Requirements for Family Work Centers (3)

5810 Crafts (1-4)

5820 Interior Design (1-3)

5830 Problems in Housing (1-3)

5910-20-30 Seminar (1-4, 1-4, 1-4)

6110 Contemporary Housing Issues and Problems (3)

6120 Advanced Topics In Housing Research (3)

6210 Environmental Design Analysis (3)

6320 Role of Crafts In Society (3)

6410 Conceptual Development in Craft Design (3)

6420 Perspectives in Crafts and Interior Design (3)

The following periodically are offered only at the Pi Beta Phi Arrowmont School of Crafts, Gatlinburg, Tennessee:

2211 Creative Design (1-4) Content same as 2210. May be repeated. Maximum credit 9 hours. Prereq: permission of department head.

3311 Metal Design (1-4) Content same as 3310. May be repeated. Maximum credit 9 hours. Prereq: permission of department head.

3321 Metal Design (1-4) Content same as 3320. May be repeated. Maximum credit 9 hours. Prereq: permission of department head.

3411 Weaving (1-4) Content same as 3410. May be repeated for credit.

3421 Weaving (1-4) Content same as 3420. May be repeated for credit.

3431 Weaving (1-4) Content same as 3430. May be repeated for credit.

3511 Textile Design (1-4) Content same as 3510. May be repeated for credit.

3521 Textile Design (1-4) Content same as 3520. May be repeated for credit.

3611 Wood Design (1-4) Content same as 3610. May be repeated for credit.

3621 Wood Design (1-4) Content same as 3620. May be repeated for credit.

3711 Enameling (1-4) Content same as 3710. May be repeated for credit.

3721 Enameling (1-4) Content same as 3720. May be repeated for credit.

4311 Crafts in America (1-4) Content same as 4310. May be repeated for credit.

4411 Craft Media (1-4) Content same as 4410. May be repeated for credit.

4421 Leather Design (1-4) Content same as 4420. May be repeated for credit.

4431 Plastics (1-4) Content same as 4430. May be repeated for credit.

4511-21-31 Ceramics (1-4, 1-4, 1-4) Content same as 4510-20-30. May be repeated for credit.

4621 Studio Problems in Leather Design (1-4) Content same as 4620. May be repeated for credit.

4631 Studio Problems in Metal Design (1-4) Content same as 4630. May be repeated for credit.

4641 Studio Problems in Weaving (1-4) Content same as 4640. May be repeated for credit.

4651 Studio Problems in Textile Design (1-4) Content same as 4650. May be repeated for credit.

4661 Studio Problems in Wood Design (1-4) Content same as 4660. May be repeated for credit.

4671 Studio Problems in Enameling (1-4) Content same as 4670. May be repeated for credit.

4681 Studio Problems in Plastics (1-4) Content same as 4680. May be repeated for credit.

4691 Studio Problems in Ceramics (1-4) Content same as 4690. May be repeated for credit.

5331 Craft Design (1-4)

5411 Advanced Problems (1-4)

5441-51-61 Metal Design (1-4, 1-4, 1-4)

5442-52-62 Weaving (1-4, 1-4, 1-4)

5443-53-63 Textile Design (1-4, 1-4, 1-4)

5444-54-64 Wood Design (1-4, 1-4, 1-4)

5445-55-65 Enameling (1-4, 1-4, 1-4)

5446-56-66 Plastics (1-4, 1-4, 1-4)

5447-57-67 Ceramics (1-4, 1-4, 1-4)

5811-21-31 Special Problems in Related Art, Crafts and Interior Design (1-4, 1-4, 1-4)

5911-21-31 Seminar in Related Art, Crafts, Interior Design (1-4, 1-4, 1-4)
Food Systems Administration (388)

2910 Seminar in Food and Lodging Administration (2) Overview of field of food and lodging and professional curriculum. Contacts with industry through field trips and guest speakers. Students must pay for their own field trip expenses.

3000 Dimensions of Tourism (3) Economic and cultural impact of tourism on society. Examination of forces influencing the domestic and international tourism industry.

3110 Quantity Food Procurement, Production and Service (5) Application of principles necessary for determining needs, procuring, storing, producing and serving foods in volume. Prereq: Food Science 1010 or 2510; Economics 2130 or consent of instructor. 3 hrs and 2 labs.

3220 Externship in Food and Lodging Administration (5) Planned educational experience in selected food and lodging operations. Prereq: 2910, 3110.

3320 Food Service Administration (2-3) Effective and efficient use of management resources in food service systems. Two credits to include quantity food laboratory. Prereq: 3110 or consent of instructor. Not open to majors in food systems administration.

3920 Survey of Dietetics (1) Introduction to dietetics and to career opportunities; and role of dietitian in health delivery systems. Concurrent with Nutrition through 2920. Prereq: Junior standing.

4130 Food Systems Administration (3) Functions of management applied to food service systems. Prereq: 3110.

4140 Food Systems Personnel Development (3) Development of training programs for food systems personnel. Prereq: 4130 or consent of instructor.

4150 Design and Layout of Food Service Systems (3) Design of physical facilities and selection and purchasing of equipment for food service systems. Prereq: 3110 or consent of instructor.

4210 Field Experience (3-15) Planned educational experience in selected food service systems and food and lodging systems. To be taken between junior and senior year if all prerequisites are completed. Prereq: 4130, 4150.

4250 Food and Lodging Managerial Cost Control (3) Cost analysis for control. Use of financial statements for decision making for food and lodging systems. Prereq: 4130; Accounting 2210.

4260 Food and Lodging Physical Plant, Planning and Maintenance (4) Feasibility, planning development and construction of food and lodging physical plant and maintenance. Electrical, mechanical, heating, plumbing, air conditioning and ventilation and illumination systems. Types of building materials and construction. Prereq: 3110; 4150 or consent of instructor. 3 hours and 1 lab.

4270 Food and Lodging Information Systems (3) Qualitative and quantitative analysis of information systems for decision making in food and lodging operations. Prereq: 4130, 4250; Office Administration 2750.

4410-20-30 Clinical Experience in Dietetics (3, 3, 3) Development of technical, human and conceptual skills through planned educational experiences at increasing levels of administrative responsibility in selected food systems. Must be taken in sequence. Prereq: 3110; 4410 coreq to 4130; 4430 coreq to 4140. Open only to students in Coordinated Undergraduate Program in Dietetics.

4421 Contemporary Developments in Dietetics (2) Relating professional course concepts to clinical experiences through small group discussions. Open only to seniors in the Coordinated Undergraduate Program in Dietetics. May be repeated. Maximum 6 hours credit.

4710 Contemporary Developments (1-3) Student or staff initiated course for study of special topic(s) pertinent to the field, topics selected to be determined by instructor and instructor with departmental approval. Elective credit only. Prereq: Consent of instructor. May be repeated with departmental approval for credit up to 9 hrs.

4800 Current Topics (1-3) Assigned reading and group discussion of research, literature, and credit and arranged. Prereq: 3110, or permission of instructor.

4900 Seminar (1-3) Review, organization, and reporting of literature on selected topics. May be repeated for credit. Prereq: 3410 or consent of instructor. Hrs and credit arranged.

4978 Honors: Food Systems Administration (1-3) Special problems for juniors and seniors showing special ability and interest in institution administration. May be repeated for credit. Hrs and credit arranged.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5110-20 Experimental Quantity Food Study (3, 3)

5210 Methods of Food Systems Research (3)

5220 Experimental Design of Food Systems Facilities (3)

5230 Food Systems Evaluation (3)

5240 Financial Management of Food Systems (3)

5310 Administration of Food Service Delivery Systems (3)

5509 Uncovered Food Systems (3)

5700 Current Programs and Trends in Food Systems Administration (1-3)

5800 Problems in Food Systems Administration (1-3)

5850 Field Experience (3-9)

5900 Seminar in Food Systems Administration (1-3)

6110 Advanced Topics in Institution Administration (3)

6210 Manpower Planning and Training for the Food Service Industry (3)

6310-20 Quantitative Methods to Control Resources in Food Service Systems (3, 3)

6900 Seminar (1-3)

Home Economics (481)

Professors: L.M. Oolid (Dean), Ph.D. Wisconsin, D.Sc. Rhode Island; O.E. Goertz (Associate Dean), Ph.D. Kansas State.

Associate Professor: M.N. Perry (Dean for Graduate Studies), Ph.D. Tennessee.

Assistant Professor: V.S. Anagnost, (Assistant Dean), M.S. Tennessee.

1010 Home Economics as a Profession (1) Scope of the profession of home economics; educational and professional preparation; personal qualities required and satisfaction to be gained from various careers within the profession. Satisfactory-No Credit.

1510 Family Systems: Human Development (4) Definition, description and utilization of basic systems concepts as applied to development of individual and family; emphasis on professional development and contribution.

1520 Family Systems: Aesthetic Environment (4) Examination of near and far environment from an aesthetic perspective with implications for quality of life of individuals and families.


College of Home Economics 159
3110 Methods of Community Services Development (3) Organization, educational responsibility, objectives, methods and evaluation of community services programs. Prereq: Psychology 2500 or equivalent.
3510 Family Systems: Consumer Resources (4) Appraisal and application of effective management of resources with implications for role of professional in the interactions of individuals and families with society. Prereq: 3 hrs of economics; junior standing.
4000 Senior Seminar (2-15) Personal application of interpersonal, professional and political competencies through experience in community service training to serve society in a professional capacity; gaining experience beneficial to chosen professional careeer; scope of current research and career opportunities in home economics; comprehension of professional ethics required of a home economist. May be repeated. Maximum credit 15 hours. Prereq: Junior or senior standing. Permission of department head required for credit beyond 2 hours. S/NC.
4110 Community Services Programs with Adults (3) Procedures and techniques in working with adults; individual, group and mass methods. Taken as an off-campus course of field training together with 4120. Prereq: 3110 and permission of instructor.
4120 Community Services Programs with Youth (3) Procedures and techniques in working with youth. Taken as an off-campus course of field training together with 4110. Prereq: 3110 and permission of instructor.
4130 Methods and Procedures for Community Services Work (3) Individual, group, mass and indirect methods in community service work. Prereq: 3110. 2 hrs and 1 lab.
4710 Contemporary Developments (1-3) Recent advances in specialized areas of home economics, their implications for home economics and related professions. Consent of instructor. 3 hrs arranged for credit up to 9 hrs.
4910 International Study Tour (6) See page 148 Prereq: Consent of instructor.
4978 Honors: Community Services Programs (3) Problems for juniors and seniors with special interest in community services programs. May be repeated. Maximum credit 9 hours. Prereq: permission of department.
GRADUATE
5060 Practicum (1-12)
5100 International Studies (1-15)
5210 History and Philosophy of Home Economics (3)
5220 Development of Community Services Programs (3)
5230 Evaluation of Community Services Programs (3)
5600 Home Economics in the Community (3)
5700 Current Programs and Trends in Human Resource Development (1-3)
5800 Problems in Community Services (1-3)
5900 Seminar in Human Resource Development (1-3)
6000 Doctoral Research and Dissertation
6110-20 Theoretical Issues in Human Resource Development (2-3)
6210 Professional Issues in Human Resource Development (2-3)
6310 Advanced Topics (3)
6500 Methodological Issues in Home Economics (3)
6900 Seminar (1-3)

Home Economics Education (490)
Professors: N.P. Logan (Head), Ed.D. Tennessee; I. Brown (Emeritus), Ph.D. Ohio State.
Associate Professor: S.W. Miller, Ph.D. Ohio State.
Assistant Professor: J.H. McIntire, Ph.D. Florida State.
The Department of Home Economics Education is included as an instructional unit in the Department of Vocational-Technical Education in the College of Education (see page 113 for course offerings).
Professional subject matter courses are offered by the departments of the College of Home Economics for those preparing for secondary school teaching programs. The home economics education curriculum is designed to provide the requirements for certification in vocational home economics.
The curriculum is listed on page 153.

Textiles and Clothing (971)
Professor: A.J. Trecce (Head), Ph.D. Ohio State.
Associate Professors: I.M. Ford, Ph.D. Pennsylvania State; B.C. Goswami, Ph.D. Manchester (Great Britain); J. Regi, Ph.D. Notre Dame; T.L. Vigo, Ph.D. Tulane.
Assistant Professors: R.P. Dowlen, M.S. Tennessee; M.F. Miller, Ph.D. Pennsylvania State.
Instructors: A.L. Bullock, B.S. Mississippi College; B.C. Henderson, M.S. Purdue; B.M. Willard, M.S. Tennessee.
1160 Costume Analysis (2) Analysis and application of design principles related to different figure types and activities. 1 hour and 1 lab.
1165 Clothing I (3) Fundamentals of pattern alteration, fitting and construction with emphasis on design quality and construction compatibility. Prereq: 1160, 1 hour and 2 labs.
2110 Fashion (3) How fashion works, consumer decision making, fashion trends and influences.
3330 Textiles (3) Textile products—study of consumer selection, preference and satisfaction with emphasis on performance. For non-majors only.
3410 Cultural and Functional Aspects of Textiles and Clothing (3) Cultural, socio-psychological, functional and technological developments in textiles and clothing. Prereq: 3 hrs of the following: child development and family relations, economics; 4 hrs sociology or anthropology or psychology.
3420 Textiles I (3) Consumer-oriented study of textiles, emphasizing fibers, fabric constructions and finishes in relation to use, serviceability and care of apparel and household fabrics. Prereq: 12 hrs chemistry or physics or biology or botany. 2 hrs and 1 lab.
3440 Clothing II—Advanced Construction (3) Comparative study and investigation of fabric designs and processes utilizing basic principles including fitting, elementary flat pattern, quick tailoring methods and couture finishing techniques. Prereq: 1150. 1 hr and 2 labs.
3450 Consumer Issues: Clothing for Contemporary Families (3) Problems of clothing consumption encountered during various stages of family life cycle. Prereq: Junior standing.
3460 Design Analysis I (3) Interpretation of dress design terminology in finished garments developed through media of flat pattern.
3470 Tailoring (4) Evaluation and use of tailoring methods as applied in selection, fitting and completion of tailored wool garments. Prereq: 3440. 3 labs.
3480 Historic Costume (3) Development of costume from ancient to modern times with consideration of historic, social, and economic settings.
3510 Fashion Merchandising: Planning and Control (3) Analysis of fashion merchandising problems and procedures focusing on application of decision mechanisms. Prereq or coreq: 2110 and Accounting 11.
4010 Textiles II (3) Recent textile developments with emphasis on man-made fibers, new construction techniques and finishes. Opportunity for individual investigation. Prereq: 3420.
4110 Fashion Buying (3) Analysis of buying practices, procedures, activities, techniques and under lying concepts fundamental to fashion merchandising. Prereq: 3510.
4120 Textile Economics (3) Economic background of textile and apparel industries with emphasis on production and distribution. Current national and international problems. Prereq: 3420; Economics 2111 or 2122.
4140 Introduction to Textile Testing Methods (3) Methods and equipment used in physical testing as approved by recognized textile groups. Prereq: 3420. 1 hr and 2 labs.
4210 Elementary Textile Microscopy (3) Microscopic techniques applied to study of textile fibers and fabrics. Prereq: 4010. 1 hr and 2 labs.
4220 Textile Fiber Chemistry (4) Chemistry of textile fibers with emphasis on structure, preparation and reactions. Implications relating to dyeing and finishing of fabrics. 1 lab.
4230 Theory and Interpretation of Fashion Design (3) Analysis and application of historical, sociological, cultural, and environmental sources of costume design interpretation with emphasis on original contemporary design. Prereq or coreq: 1150, 3410, and 3480. 2 hours and 1 lab.
4240 Design Analysis II (3) Interpretation of dress design terminology in finished garments developed through the media of draping.
4510 Teaching Materials (3) Investigation, preparation and evaluation of teaching materials. For students planning to teach or do home demonstration work. Prereq: 3440; senior standing. 1 hr and 2 labs.
4620 Introduction to Field Experience in Merchandising (3) Interviews with store personnel, placement and planning for field experience. Prereq: Economics 2110-20, junior standing, major in merchandising, approval of program coordinator. Open only to students who intend to enroll in 4630-40.
4630 Field Experience in Merchandising (8) Off-campus, supervised experience in a cooperative program with business establishments which merchandise textiles and/or apparel. Prereq: 4620, senior standing, major in merchandising. Coreq: 4640. Offered fall quarter only.
4640 Methods in Field Experience (8) Investigation of training systems and store organization analyses of jobs, and evaluation of field experience. Prereq: 4620, senior standing, major in merchandising. Coreq: 4630. Offered fall quarter only.
4710 Contemporary Developments (1–3) Student or staff initiated course for study of special topic(s) pertinent to the field. Topics selected to be determined by students and instructor with departmental approval. Elective credit only. Prereq: Permission of instructor. May be repeated with departmental approval for credit up to 9 hrs.
4978-88-98 Honors: Textiles and Clothing (3, 3, 3)
Individual problems for juniors and seniors showing special ability and interest in textiles and clothing
Admission only upon recommendation of head of department. Hrs arranged.

GRADUATE

5000 Thesis
5002 Non-Thesis Graduation Completion (3)
5110 Textile Testing and Methods of Research in Textiles (3)
5120 Advanced Problems in Textiles and Clothing (3)
5130 Advanced Tailoring (3)
5150 Principles of Design Analysis (3)
5160 Review of Literature (3)
5170 Social, Psychological and Economic Aspects of Clothing (3)
5180 Advanced Textile Economics (3)
5210 Evaluation of Instructional Materials in the Field of Textiles and Clothing (3)
5220 Historic Textiles (3)
5240 Practicum (1-9)
5250-60-70 Problems in Textile Chemistry (4, 4, 4)
5310 Fashion Analysis (3)
5320 Problems in Historic Costume (3)
5800 Problems in Textiles and Clothing (1-3)
5900 Seminar in Textiles and Clothing (1-3)
6010 Advanced Studies in Textiles and Clothing (3)
6110 Selected Issues in Textiles and Clothing (3)
6140 Selected Behavioral Theories in Clothing (3)
6150 Social-Psychological Theories of Clothing Consumption (3)
6160 Textile Flammability (3)
6170 Physical Performance Behavior of Textile Structures I (3)
6910 Seminar in Textiles and Clothing (1-3)
College of Law

Kenneth L. Penegar, Dean
Mary Jo Hoover, Assistant Dean
Curtis L. Wells, Assistant Dean

The University of Tennessee College of Law commenced operation in 1890 and has continuously sought to provide high quality legal education in a university community.

While the principal objective of the Law College is to prepare students for the private practice of law, its total mission is more broadly conceived. The College of Law exposes students to the legal issues of our society enabling them to develop analytical skills in respect to decisional law and statutes, the ability to communicate effectively to others their knowledge of the law, an awareness of the historical growth of the law, a knowledgeable appreciation of the interrelationship of law and society, and the ability to use law as an implement of societal control and development.

Students are thus equipped to serve their community not only as advocates and counselors, but as policy makers and active, responsible citizens as well.

The coordinated program of the College of Law has three dimensions. Teaching and learning, research into and appraisal of our legal institutions, and service to the community. Each plays a significant role in the College of Law as a modern law center.

The teaching and learning element of legal education at the College of Law involves a cooperative classroom interaction between faculty and students in the analytical study of a host of questions and problems found in today's legal profession. These involve decisional law, statutory interpretation, administrative regulation, techniques of trial and appellate advocacy, and the roles and responsibilities of the lawyer in advising and representing clients. While proper consideration is given to the problems of Tennessee law, the course of study is conducted with a view toward providing an awareness and understanding of the regional and national perspective so as to prepare our students for service in any state.

The College of Law is also directly involved in providing service to the community of which it is a part. A major element of public service is centered in the Legal Clinic where students, under the guidance of skilled and experienced licensed practitioners, provide legal services to indigent persons of Knox County. Additionally, through research, consultative, and other services to legal institutions and groups within the state, the College of Law seeks to participate in the development and improvement of the society in which its students may eventually practice law.

The Public Law Research and Service Program and the Continuing Legal Education Program are primary examples of this function.

In combination, the direction and objectives of the Law College lead to the development not of a narrow technician, but of a student of the law with the perspective, breadth and understanding necessary for the accomplishment of the many tasks assigned by society to the legal profession.

The College of Law Building

Since 1950 the College of Law has occupied a building especially designed for teaching, study, and research in the law. In the spring of 1971 the Law College occupied the new wing begun in the fall of 1969. The new addition has doubled the available facilities. The library, the classrooms, and the offices are air-conditioned. Adequate classrooms, courtrooms, seminar rooms, a private office for each full-time faculty member, the well-equipped offices of the Legal Clinic, and a spacious, well-lighted Law Library are contained in this modern building. Stack space for more than 200,000 volumes will permit the replacement of one of the largest law book collections in the South.

Legal Clinic

The University of Tennessee Legal Clinic was established in 1947. Though the Clinic provides legal assistance to indigent persons, it is designed primarily as a teaching device to correlate theory and practice. It introduces the student under faculty supervision to the law in practice through personal contact with clients and their problems. The Legal Clinic functions as a large law office in which the student gains experience in interviewing clients, writing legal letters, investigating and evaluating facts, preparing memoranda of law, preparing cases for trial or adjustment, and briefing cases. Classroom work supplements the handling of actual cases. The student is thus trained in the technique of law practice and the management of a law office. The ethical responsibilities of lawyers and their function as public servants are stressed. Under present rules of the Tennessee Supreme Court, Clinic students, under the direct supervision of the Legal Clinic staff, are certified to practice before all the courts of Tennessee.

The Law Library

The Law Library contains the official state reports of all states, the complete National Reporter system which covers all states and the federal courts, the Annotated Reports, standard sets of miscellaneous reports, the reports of the Canadian cases and of English cases from the yearbooks to date. In addition to these, there are adequate encyclopedias, digests and dictionaries, standard textbooks, law reviews, and current looseleaf services, totaling together more than 100,000 catalogued volumes. The Library is under the supervision of a law librarian who is trained in law and library science. The physical facilities, the collection of books, and the library staff combine to make the Law Library
requirements of the joint degree program.

The College of Law will award credit toward the J.D. degree for acceptable performance in a maximum of 12 quarter hours of approved graduate-level courses offered by the College of Business Administration. Three of the 12 quarter hours must be earned in Accounting 5810 or a more advanced accounting course.

If College of Law credit is given for such accounting courses, the joint degree student may not receive College of Law credit for Legal Accounting (Law College Course No. 8590).

The College of Business Administration will award credit toward the M.B.A. degree for acceptable performance in a maximum of 12 quarter hours of approved courses offered by the College of Law.

The first year courses in the College of Law, students are encouraged to maximize the integrative facets of the joint program by taking courses in both colleges each quarter.

A. Awarding of Credit for Recording Purposes in the College of Law for graduate business courses and in the College of Business Administration for law school courses, grades awarded will be converted to either Satisfactory/No Credit and will not be included in the computation of the student's grade average or class standing in the college where such grades are so converted.

The College of Law will award a grade of Satisfactory for a graduate business course in which the student has earned a B grade or higher and a No Credit for any lower grade. The College of Business Administration will award a grade of Satisfactory for a College of Law course in which the student has earned a 2.3 grade or higher and a No Credit for any lower grade. Grades earned in courses of either college may be used on a regular graded basis for any appropriate purpose in the college offering the course.

The official academic record of the student maintained by the Registrar of the University shall show the credit assigned by the instructor without conversion. The student must pass a final written comprehensive examination to receive the M.B.A. degree.

Satisfactory/No Credit Option

1. Course eligibility
   a. Required courses may not be taken on a Satisfactory/No Credit basis except specified.
   b. Courses taken on a Satisfactory/No Credit basis may not be used to satisfy area requirements.

2. Satisfactory/No Credit
   a. Election to take courses on a Satisfactory/No Credit basis must be made at the time of registration and cannot be changed thereafter. Students who register for a course Satisfactory/No Credit when they are ineligible to do so will be required to change to regular grading when the error is discovered.
   b. Credit will be given for a course taken on a Satisfactory/No Credit basis only if the student completes the course in which the student completes (receives a grade in) at least 10 hours on a regular grade basis.
   c. Students electing the Satisfactory/No Credit basis must meet all require-
Program of instruction

The following program is designed to give the student an adequate preparation for the practice of law. From twelve to fifteen hours of classroom work a week are required of all full-time students. The required courses will be taken as early in the law course as possible or as scheduled by the law faculty. See statement of course availability at end of section.

REQUIRED COURSES


8020 Contracts I (5) The basic agreement process and legal protection afforded contracts. Problems of offer and acceptance, interpretation, illegality, and the statute of limitations.

8030 Contracts II (4) Continuation of study begun in Contracts I. Concentrating on remedies, conditions, impossibility and frustration, third party beneficiaries, assignment and delegation, and discharge.

8040 Criminal Law (4) Course on substantive aspects of criminal law. General principles applicable to all criminal conduct, then specific analysis of particular crimes. Substantive defenses to crimes, including insanity, intoxication, mistake, necessity, legal duty, self-defense, and duress.

8050 American Legal History (3) Examination of historical development of the law, legal institutions, legal profession, and legal education from colonial times to present. Historical relationship of legal system to society emphasized.

8070 Legal Process (3) Introductory course on judicial process. Brief survey of judicial organization and procedure, legal history, case analysis, significance of precedent, influence of the judge as policy maker, adversary system, and role and responsibilities of the lawyer as advocate. Legislative interpretation.

8110-11-12 Research and Writing I, II, III (2, 2, 2) This three-semester sequence in research and writing is designed to provide the student with a progressively more sophisticated involvement in legal research and writing. Fundamentals of Legal Bibliography with an emphasis upon techniques and research skills will be an integral part. Among other components to be included are preparation of a client letter, drafting of pleadings, contracts and other instruments, the preparation of a memorandum of law, and presentation and presentation of an appellate argument (written and oral). Classes will be divided into small sections, and individual criticism given on all work submitted. Lectures on research writing and advocacy skills will be included. 8110 and 8112 graded S/NC.


8140 Property II (5) The recording system, title assurance, easements, nuisances, lateral support, water rights, zoning, and eminent domain.

8180 Torts I (4) Intended interference with the person, assault and battery, false imprisonment. Negligence and standard of care, proof of negligence. Affirmative duties, immunities, actual causation, and contributory causes.


8300 Constitutional Law I (4) Judicial review, limitations on judicial power, national legislative power, regulation of commerce, power to tax and spend, other sources of national power, state power to regulate and tax, intergovernmental immunities.

8310 Constitutional Law II (4) Freedom of expression, association and religion. Fourteenth Amendment rights excluding rights of criminally accused, including discrimination as to race, sex, etc., right to franchise and political participation, concept of state action in matters of civil rights.

Either 8300 or 8310 will satisfy the Constitutional Law requirement. One must be taken for that purpose and the other may be taken as an elective.

8545 Juvenile Law Seminar (3) After examining the unique history and philosophy of juvenile justice system, course will consider jurisdiction, judicial and extra-judicial functions of juvenile court, and various dispositional alternatives. Students will read judicial opinions and materials from fields of history, sociology, and psychology. Knox County Juvenile Court will serve as laboratory for students. Professional staff from the Court will participate in seminar on regular basis.

8660 Legal Profession (3) Role of the lawyer in society and ethical responsibilities implied in that role. Admission to the Bar, the organized profession, solicitation, advertising, unauthorized practice, conflicts of interest, decision to represent or withdraw as counsel; fiduciary relationship, advocacy and its limitations, fees, and disciplinary procedures.

8600 Criminal Process I (3) Due process, equal protection, arrest, search and seizure, wire tapping and electronic eavesdropping, entrapment, right to counsel, trial by jury, self-incrimination, and legal process.


8160 Interviewing and Counseling (3) Lawyer's role as interviewer and counselor. Designed to increase interpersonal skills by developing heightened sensitivity and understanding of emotional and psychological forces. Use of videotape techniques and role playing. Models developed from which students can analyze and evaluate classroom efforts.

8170 Trial Practice (3) Criminal and civil litigation, with primary emphasis on trial problems and preparation for trial. Emphasis on trial strategy, professional responsibility, fact investigation, witness preparation, discovery and presentation of evidence, selection and instruction of juries, opening and closing arguments.


8220 Agency and Partnership (4) Principal and agent. Master and servant. Authority, unauthorized transactions, notice, ratification, restitution. Parties to transactions in individual and partnership areas. Partnership creation, dissolution, and termination, distribution and winding up. Organizational problems and devices to reduce risk. The Uniform Partnership Act.

8240 Arbitration Seminar (3) Arbitration of labor agreements. Judicial and legislative developments, nature of process, advantages and disadvantages. Selective arbitration problems on various topics under collective agreements, and role of lawyers and arbitrators in the process. When course is not offered, law students, with law faculty permission, may elect Economics 4000.


8280 Conflict of Laws (5) Jurisdiction, foreign judgments, choice of law, constitutional limitations, reenforcement, and classification.


8345 Criminal Law Seminar (3) Advanced problems in Criminal Law and Administration of Justice.

8350 Damages (3) Rules and standards including concepts of value, allowance of interest and expense, measurement of damages and avoidance of damage suits. Credit of benefits accruing to company. Damages under tort actions including negligence, health care fraud, and insurance fraud.

8360 Family Law (4) Survey of laws affecting the formal and informal family relationship. Topics include premarital disputes, antenuptial contracts, creation and termination of family, marriage, legal consequences of marriage, effects of marriage, support obligations within the family, legal separation, annulment, divorce, alimony, property settlements, child custody, child support, adoption, abortion, and illegitimacy.

8380 Equity (4) Jurisdiction and power of courts of equity. Specific performance. Injunctions.

8400 Estate Planning (3) Problems of estate planning both inter vivos and testamentary. Advantages and disadvantages of various types of ownership. The law and practice of fiduciary administration, insurance, wills, future interests, trusts, corporate partnerships, and gifts as related to estate planning. Research on assigned topics. Drafting of estate plan for hypothetical fact situations. Prereq: 8500 and 8440. In addition, recommended that student have had as many of the following courses as possible: Wills, Private Corporations, Taxation (Income), Partnerships and Trusts.

8420 Evidence I & II (3, 3) Rules regulating introduction and exclusion of oral, written, and demonstrative evidence, including relevancy, competence, impeachments, hearsay, privilege, judicial notice, presumptions, and burden of proof.

8460 Federal Courts (4) Jurisdiction of federal courts, and conflicts between federal and state judicial systems, including nature of judicial power, federal questions, diversity, removal, jurisdictional amount, choice of state or federal law, habeas corpus, abstention, preliminary injunctions, and appellate jurisdiction and joinder of parties and claims.

8490 Environmental Law (4) Survey course examining basic federal and state statutes and regulations for air and water quality, together with other general legislation such as the federal (plus related states) Environmental Protection Act, or the Clean Air Act. Selected introduction to role and scope of federal, state, and local agencies in enforcement and proposing new laws and regulations.

8500 Future Interests (4) The law of future interests, including reversions, remainders, possibilities of reverter and rights of entry, executory interests, construction of limitations, and rule against perpetuities.

8510 Government Contracts (3) Principles relating to government procurement, both federal and state, to include award, performance, and termination of contracts. Administrative settlement of disputes arising under government contracts. Prereq: 8200.


8525 International Business Transactions (3) Legal status of persons abroad, acquisition and use of property within a foreign country, doing business abroad as a corporation, doing business in a foreign country, and expropriation or annulment of contracts or concessions. Prereq: 8550, 8553.

8530 International Law I (3) International agreements, organizations, recognition of states, nationality, territory, jurisdiction and immunity.

8533 International Law II (3) International claims, expropriation, force and war.

8535 Jurisprudence (3) A comparative examination of legal theories including natural law, idealism, historical jurisprudence, utilitarianism, analytical jurisprudence, sociological jurisprudence, legal realism, and the policy science approach.

8540-42 Labor Relations Law I, II, III (3, 3, 3) Evolution of labor relations laws, rights of self-organization; employer and union unfair labor practices; strikes; boycotts and picketing, collective bargaining; strike and lockout injunctions; internal union affairs; individual rights in labor relations; employment discrimination; federalism and preemption and unions and antitrust laws. Courses recommended in sequence, but one offering may be elected.

8550 Labor Relations Law Seminar (3) Study and discussion of selected labor relations law problems.

8555 Negotiations and Dispute Settlement (3) Study of: (1) Negotiations process and its role in legal disputes, with training in art of negotiating and settling disputes in a manner which fulfills the requirements of clients and avoids unnecessary litigation; (2) effective use and further development of informal methods of dispute settlement, including pretrial procedures, grievance procedures, mediation and other third party intervention.

8560 Law, Language and Ethics (4) An intermediate level jurisprudence-type course. Law is the mind's attempt to defend, direct and administer human activity. Exploration of ethical values underlying formal legal networks, logic and critical thinking, judicial reasoning and legal concepts through the methods of epistemology.


8580 Law and Current Problems Seminar (2-3) Credit hours determined at the option of instructor. May be repeated for credit.

8590 Legal Accounting (2) A course designed to familiarize law students with accounting problems and techniques, and to enable them to use and understand accounting information.

8600 Civil Advocacy (5) Nature, function, dynamics, and processes of lawyering and learning, with emphasis on development of factual research and models useful in helping law students evaluate their roles in legal system. In addition to classroom comprehension, students will be introduced to develop and present oral arguments. Prereq: 8440.

8605 Advanced Civil Advocacy (5) Students continue and complete complex civil cases. Expanded opportunities for circuit court, jury trials, appeals and other interest litigation. Classrooms with component deals in more advanced skills and strategies.

8615 Regulated Industries (3) Federal and state governmental regulation of monopolistic and other "regulated industries" (e.g., transportation, public utilities, broadcasting).

8620 Criminal Advocacy (5) Classroom component devoted to trial skills and strategies. Case load diversified among crimes with intensive staff supervision. Courtroom experience limited to preliminary hearings and misdemeanor charges in general and city courts.

8630 Specialty Clinic (3) Each component headed by a faculty supervisor. Intensive field experience on a specialized problem in conjunction with seminar on course topic. Major litigation and law reform efforts may be involved.

8632-3 Economic Development Clinic (2, 3) Two quarter course in counseling small corporate business ventures. Emphasis on non-litigious skills: negotiation, counseling, document preparation in conjunction with staff attorney supervision. Classroom component deals in more advanced skills and strategies.

8640 Legal Draftsmanship (2) Independent drafting by students under direct supervision of instructor.

8650 Intellectual Property (3) Protection for intellectual property includes patents, trademarks, trade secrets, copyright, tax considerations and international aspects.
8760 Legal Writing (1-4) Legal research and writing of papers on problems of law. Work on Tennessee Law Review may count toward fulfillment of requirement. Offered on a credit/no credit basis. Prereq: faculty permission.

8680 Legislation (3) Approximately half the course is devoted to traditional case method approach to such problems as interpretation, drafting, and enabling statutes, the remainder of course is devoted to class project in which class considers a potential area for legislative reform from preliminary research through a persuasive form to final drafting, parliamentary debate and voting.

8690 Modern Land Use Law (3) Land use planning, nuisance, zoning, and eminent domain.

8700 Local Government Law I (3) Distribution of power between state and local governmental units. Sources of authority for limitation on local government operations. Creation of local governmental units and determination of their boundaries. Home Rule.

8705 Local Government Law II (3) Problems presented by fragmentation of local government units. Current solutions to include government as authorized by Tennessee law. Problems in the financing of government. Current state-local issues (e.g., school financing and land use control). Influence of federal programs on local government financial operations and development.

8710 Oil and Gas Law (3) Selected materials on nature of interest, conveyancing, royalties, grants and reservations, leases, and taxation.

8720 Advanced Constitutional Law (3) Select problems or perspectives in constitutional law. Designation is intended to cover numerous approaches which involve use of instructors from other disciplines such as history, political science, economics, sociology. Prereq: 8350 and 8310 or permission of instructor.

8730-35 Tennessean Legal System, 3, Basic legal system of Tennessee from perspective of its impact on day-to-day life of citizens. Focus on law of contracts, real property with emphasis on landlord and tenant, family law, torts, juvenile law, criminal law, and individual rights with respect to government. Work required in addition to three hours weekly seminar will be a major research memorandum and teaching law in a high school. Course extends two quarters and completion of both quarters is required for hour and graded credit. Incomplete (W) is not available for this section. Course is graded on a credit/no credit basis. First 5 hours of section 8735 may be graded numerically only upon completion of 8735. Prereq: Consent of instructor.

8740 Private Corporations I (3) History and nature of the corporation as a form of business enterprise; statutory and judicial legislative regulation; promoters and preincorporation transactions; incorporation procedures; defective incorporation; disregard of the corporate entity; rights and management duties of shareholders, directors and officers.

8760 Private Corporations II (3) Corporate finance; rights, duties, and liabilities respecting securities; special problems of close corporations; dividends and purchase by corporation of its own shares; fundamental corporate changes (sale of assets, mergers, etc.); shareholders' derivative actions.

8770 Products Liability (3) Negligence of manufacturers, dealers, and retailers; with or without defects; liability of manufacturers, dealers, and retailers to other suppliers. Defectiveness and causation. Disclaimers and contributory fault.


8790 Advanced Legal Bibliography and Research Techniques (3) A practical approach to research in legal problems. Taught in Research and Writing I. Included will be use of U.S. government documents, preparation of legislative histories and federal legislation, specialized research tools in areas of taxation, labor law and international law.

8800 Sales (3) Art. 2 (Sales) and Art. 7 (Documents of Title) of the Uniform Commercial Code.

8810 Secured Transactions (3) Brief survey of sufficiency and guaranty. Art. 9 (Security interests in Personal Property) of the Uniform Commercial Code.

8815 Race and Sex Discrimination and the Law (4) Comparison of discriminatory practices under equal right and equal benefits statutes and equal employment opportunity law; legal restrictions and remedies, as they affect education, employment, housing, political participation, and social and economic activities; Federal and State Legislation, judicial and administrative materials.

8820 Securities Regulation (3) Advanced problems of governmental regulation of issuance of securities.

8830 Social Legislation and Employee Benefits (3) A study of legal problems arising under such programs as workmen's compensation, wage and hour laws, unemployment compensation, public assistance, Social Security, and Medicare.

8840 Taxation (Estate, Gift and Inheritance) (3) Federal Estate and Gift Tax laws. History and development. Relationship of the two taxes. Preparation and audit of returns and estate inventories. Preparation of a return based upon hypothetical facts, and presentation of research results on assigned problems involving the law of several states are assigned.

8850 Seminar in Law and Mental Health (3) Composed of equal number of law and medical students. Assigned readings. Papers of law and medical students to prepare papers. Jointly taught by professor and psychiatrist.


8862 Taxation (Income) II (3) Taxation of formation, operation and dissolution of the corporation; partnerships; small businesses; trusts; estates.

8865 Taxation (Income) III (3) Corporate reorganizations; methods of corporate distributions; sale of corporate business; other income tax problems of corporations.

8870 Seminar in Business Planning (3) Selected problems on corporate and tax aspects of business planning and operations.

8890 Seminar in Environmental Protection (3) Through team-teaching and input of selected experts, course will focus on specific problems of environmental impact on environment and mobilizing public and private efforts in defense of the environment. Problems of proving environmental wrongs and concern with the law, e.g., TVA operations, strip mining, forest management, wildlife preserves.

8910 Administrative Law Seminar (3) In-depth study of principles of administrative law not covered in basic courses, as discretion, choice of adjudication of rulemaking to develop administrative policy, consistency in administrative action.


8930 Seminar in Consumer Protection (3) Selected problems in consumer protection.

8935 Law and Medicine Seminar (3) Examination of medical profession's involvement in judicial process. Includes: professional alternatives to fault-based liability; (2) re- sponsibility for disposition and care of dead bodies and legal principles governing organ trans- plantation; (3) expert medical proof and testimony; (4) medical-legal aspects of eugenics; (5) other more specific matters such as legal import of medical profession's various canons of ethics.


8945 Trial Moot Court (1) Experience and training in trial practice. Assaulted with decision by faculty. May act as counsel in all aspects of trial practice. Knox County Circuit Court Judges serve as Judges of Trial Moot Court. Satisfactory-No Credit.

8950 Trial Moot Court II (1) Training in trial of law suit. Satisfactory-No Credit.

8955 Seminar in Trade Regulation (3) Study and dis- cussion of selected problems arising under anti- trust laws and laws applicable to regulated industries.

8960 Trusts (4) Trusts; nature, creation, transfer, termination, modification, and administration.


8975 Water Law (3) Survey study in water law, including case studies and water law doctrines. Legal rights given to non-law students. Same as Environmental Engineering 4810 and Water Resources Development 4810.


8985 Directed Research (1-3) Independent research by a student under the direction of a faculty instructor. Student may take course maximum of once each year in last two years of study.

8990 Land Finance Law (3) Financing devices such as mortgages, deeds of trust and land contracts, problems involved in transfer of interests subject to these devices, and problems incurred in event of default. Consideration also directed to contem- porary problems arising in such areas as condo- miniums, cooperatives, housing subdivisions and shopping centers.

8998 Land Acquisition & Development (3) Alter- native business forms will be assigned teams of students who will then prepare and present for sem- inar discussion all major documents (notes, deeds, prospectus, etc.) necessary to accomplish the acquisition or development of large pieces of raw land. Prereq: 8990.

Course Offerings Subject to Change

The necessity of adjustments to accommodate changing conditions may dictate modifications in the course offerings and other features of the program described above. Accordingly, the College of Law reserves the right to make such variation in its program as circumstances may require. Prospective students who are interested in the precise course offerings at a given time or who desire other special information should make inquiry in advance.

It is necessary to offer some courses and seminars only on an every-other-year basis. Choice is based on subject matter and past patterns of student enrollment. In order to facilitate student and faculty planning these courses and seminars are listed as follows: 8350, 8510, 8520, 8525, 8570, 8705, 8710, 8720, 8780, 8830, 8980, 8990. These may be offered in the summer session or upon availability of added faculty, but this will be done only after satisfying other priorities.
College of Liberal Arts

Alvin H. Nielsen, Dean
Charles W. Keenan, Associate Dean
Boyd L. Daniels, Assistant Dean for Student Academic Affairs
Charles O. Jackson, Assistant Dean for Curriculum and Instruction

The arts and sciences encompass the entire range of human knowledge, from the earliest records to the latest laboratory results. All that human beings have observed about themselves, about their societies, and about the natural world around them is of concern to one or another of the arts and sciences.

The curriculum of the College of Liberal Arts reflects this wide-ranging concern with the life of the mind. It emphasizes the breadth of human knowledge, perceived not only in terms of the traditional categories of the humanities and the natural and social sciences but also in broader perspectives which extend across academic fields and reach beyond the boundaries of a college of liberal arts. It also stresses depth of learning, thereby seeking to acquaint the student with the rigors of the intellectual process. Through a study of the liberal arts one thus learns to participate in an intellectual tradition which is independent of particular teachers and which guides one in the choice of subjects for investigation and in the interpretation of those subjects. With time the individual begins to apprehend the great outlines of knowledge, the principles upon which it rests, the scale of its parts, and its lights and shadows.

The central purposes of a liberal education include the encouragement of intellectual tolerance, a dedication to the quest for knowledge as a worthwhile goal in and of itself, and the cultivation of a responsible, creative, individual mind. These qualities should enable one to develop throughout life an ability to reason and to express oneself clearly, an incentive to absorb emerging knowledge, and a competence to confront the uncertainties of human experience. For the student whose interests and talents lead into research, scholarship, and teaching, a liberal education provides an invaluable foundation. For the individual who enters business, industry, the professions, or government service, it furnishes a broadly useful and well-rounded educational background. For all it offers the opportunity to share in a rich intellectual heritage, in the adventures of the mind, and in the life of the educated imagination. A liberally educated person is identified not so much by specific knowledge as by quality of mind and by creative response to the challenges of the times.

At the heart of a liberal education is an appreciation of and a familiarity with a great Triad: language, literature, and the arts; history and society; science and mathematics. These three great well-springs of human thought are sources of the programs of study offered students in the College of Liberal Arts.

Programs of Study
Granting the broad, general goals of a liberal education, students come into the College of Liberal Arts with a wide variety of specific educational and vocational objectives. Recognizing this diversity, the College offers a number of different programs of study leading to the baccalaureate degree, and also several pre-professional curricula which prepare the student for advanced study but do not lead to a degree from this College.

Degrees Offered
(1) BACHELOR OF ARTS
The Bachelor of Arts is the basic liberal arts degree, representing the attainment of a broad knowledge of the arts and sciences as well as a comprehensive understanding of one or more areas of special interest. Four programs leading to this degree are open to the student:
(a) Basic Program—The program appropriate for most B.A. students, it is developed around broad area requirements in the Triad plus intensive study in one or more of the specified departmental or interdepartmental major fields described below.
(b) Individualized Program—Designed for students whose educational goals are best met by a program tailored to their particular needs, it is similar to the Basic Program in broad area requirements but permits the student to develop an individual concentration incorporating work in two or more departments.
(c) College Scholars Program—Intended for a limited number of students who are especially highly qualified and motivated and who have been selected to undertake this honors-level program, the College Scholars Program permits the student maximum freedom to design a curriculum to meet particular interests and goals.
(d) Pre-Professional Program—The Pre-Professional Program is offered for those who wish to participate in one of the cooperative 3-1 curricula in the health sciences (medicine, dentistry, pharmacy, or medical technology). The student proceeds directly to specialized training in the chosen area after the third year of liberal arts study and offers the first year of professional study in lieu of a major concentration in the College in satisfying the requirements for the B.A. degree.
(2) BACHELOR OF FINE ARTS
The Bachelor of Fine Arts degree represents intensive study preparing students for graduate study and professional positions in art. The degree is offered with a major in studio art. Recommended course combinations for those who desire to
concentrate in communication design, drawing, painting, oil, watercolor, printmaking or sculpture are available in the art department office.

(3) BACHELOR OF MUSIC

The program leading to the Bachelor of Music degree prepares students for graduate study and for positions in which a professional degree is required. The degree is offered with a major in music which has concentrations in music theory, composition, music history and literature, piano literature, and applied music (voice—organ—strings—woodwind, brass and percussion instruments—multiple woodwind instruments).

(4) BACHELOR OF SCIENCE IN CHEMISTRY

The Bachelor of Science in Chemistry is a professional degree designed in accordance with standards laid down by the American Chemical Society to train students to go directly into positions in the chemical industry or to enter graduate study leading to positions in research and college teaching. Students may elect either the four-year resident program or a five-year cooperative program in which they alternate a quarter of study with a quarter of work in a chemical industry, thus gaining seven quarters of on-the-job experience while earning the degree.

Program Planning

Each student’s academic program is highly individualized, reflecting that person’s special interests, goals, and aspirations. Usually it will reveal a growing intellectual sophistication and the development of particular motivations. On occasion, unfortunately, it gives indication of frustration and lack of clear direction. Viewed as a whole it may appear to be a miscellany of unrelated courses which were chosen almost capriciously; or it may be a carefully selected curriculum which the student brought together in a way which represented for that individual the most appropriate and effective way of attaining educational goals.

The importance of program planning can hardly be overstressed. Few students enter the College with firm educational objectives in mind and their programs develop quite readily around these predetermined goals. Many, however, do not reach that stage of certainty until their academic careers are relatively far advanced. For these persons the exploration of possible directions and programs, in consultation with faculty advisers, is an important part of the educational process. It is essential for these students to develop their programs carefully and creatively in order that maximum flexibility and ultimate decision making may be assured.

A basic decision, of course, is the degree to be sought. If it is one of the three professional degrees (Bachelor of Fine Arts, Bachelor of Music, or Bachelor of Science in Chemistry), the student’s program will be somewhat circumscribed, for these degrees are necessarily more prescriptive than the general arts degree. If the student chooses to work for the Bachelor of Arts degree, the three elements which make up the curricula leading to that degree will need to be kept in balance: the broad requirements in the

Triad: the major concentration; and the elective courses which support and supplement the work in the first two categories. Most students find it desirable to lay a broad foundation by taking courses which will satisfy the requirements in the first two years, thus reserving most of the final years for in-depth study in the area of concentration. Elective courses may be taken at any time.

Advisers in the Liberal Arts Advising Center (220 Ayres Hall), in the various major departments, in the University Counseling Center, and elsewhere on campus are available to assist students with their program planning. In the final analysis, however, only the student can determine the program which will best satisfy particular needs.

Requirements for Degrees

Bachelor of Arts

As has already been stated, the general liberal arts degree is the Bachelor of Arts, and it is the appropriate objective for most students in the College. The Bachelor of Liberal Arts Requirements for this degree and the several curricular programs which lead to it will now be discussed in detail.

Note: Students are advised to consult the University’s degree requirements as stated in the front section of this catalog as well as the requirements for the college or department.

GENERAL REQUIREMENTS

Each student seeking a Bachelor of Arts degree must develop a program which includes the following:

(1) A minimum of 180 credit hours;
(2) At least 60 credit hours in courses numbered 3000 or above;
(3) Appropriate work to satisfy the broad requirements of the Triad, counting no course for more than one Triad area (Basic Program, Individualized Program, and Pre-Professional Program only);
(4) A major consisting of at least 36 credit hours in courses numbered 2000 or above in the department or program, and counting no course in this major which has been used for Triad credit. (A course which satisfies a Triad requirement may serve, however, as a prerequisite or corequisite to a major.) A minimum grade of C must be earned in every course counted as part of a major. Students transferring from other institutions must complete at least 12 credits at the University of Tennessee, Knoxville in each major awarded on this campus.

Note on Multiple Majors:

After the general requirements described above have been satisfied, additional majors may be recorded on the transcript without regard to course overlap among majors or among these additional majors and Triad requirements. Students developing multiple majors must specifically declare this intent at the time they apply for graduation. Once a student has established the requirement that additional majors becomes subject to University-second degree requirements.

I. Basic Program

A. THE TRIAD:

Language, Literature, and the Arts

History and Social Science

Science and Mathematics

Language, literature, and the arts play a vital role in shaping human experience and perception. They give expression to human thought and feeling in forms and order to a sense of the world. The written and spoken word, the dramatic motion and gesture of theatre, film, and dance, the sensual intuitions of painting and ear in painting and sculpture, architecture and music—all of these help to define what is human.

It is important that every student of liberal arts become acquainted with these modes of experience within this culture and through exposure to cultures that are foreign, distant, and strange. To know what one is not is essential for knowing what one is.

Although there is no universal formula for determining which disciplines, skills, and enjoyments are of primary or of secondary importance, the written and spoken word has a wider range of useful and of other human skill. A basic competence in writing and reading is thus a minimal condition for knowing how to think about and relate all other activities.

The study of history is an integral part of a liberal education. Because human beings build on their experience, a clear understanding of the present requires an historical perspective. Such perspective may be developed by a number of courses, including the traditional survey of western civilization or other broad surveys such as Asian history, Latin American history, history of the United States, and Afro-American history. More specialized courses in the history of particular segments of human experience, e.g., philosophy or religion, may also prove valuable.

A liberal education presupposes not only an awareness of the past but also a familiarity with contemporary social institutions, processes, and practices. From a wide variety of offerings in the social sciences the student may choose courses useful in acquiring that familiarity. Only by such knowledge can people of good will hope to maintain humane values in a world where industrialization, urbanization, and other dimensions of technological change challenge traditional patterns of individual and collective behavior.

Study of science and mathematics develops in the student an inquiring attitude toward the natural environment and confidence in the ability to understand scientific explanations of diverse phenomena. These ends may be realized through an understanding of the empirical and the rational; through scientific methods of inquiry and an awareness of the limitations of science and technology in solving problems. The student should attain a knowledge of the way in which the development of science and technology has affected beliefs, philosophies, and the development of civilization.

Specific Requirements in the Triad

(1) Language, Literature, and the Arts

(a) Writing Proficiency

Each student is required to demonstrate ability to use the English language effectively and coherently, in one of the following
four ways:
(i) By completion of English 1510-20 or 518-28 or 1231-41.
(ii) By earning a score of 4 or 5 on the College Board Advanced Placement Test in English; or, with special permission, earning a score of 3 on that examination and completing one 2000-level course in English at the University of Tennessee, Knoxville, with a grade of B or better.
(iii) By passing (normally after completing one quarter of freshman English at the University of Tennessee, Knoxville) a proficiency examination in writing, administered by the Department of English in cooperation with the Committee on Writing Standards.
(iv) By completing 4 hours of freshman English followed by at least a minimum of 6 hours in courses which require substantial emphasis on writing. The writing-emphasis courses are identified by the Committee on Writing Standards; a list of those approved may be obtained in the office of the Department of English or in the Liberal Arts Advising Center.

Note: Students should normally take English in the first quarter of their registration and continue to take English or a writing-emphasis course in each succeeding quarter until this requirement is met.

(b) Literature, Foreign Language, and the Arts
The student may select any one of the following three options to satisfy this requirement.
(i) 8 hours of literature in a foreign language in the 3000-level or above. Prerequisite to this option is intermediate-level competence in the language, demonstrated by diagnostic (non-credit) or proficiency (credit) examination or by completion of the 2000-level sequence in that language.
(ii) Intermediate-level competence in a foreign language, demonstrated by diagnostic (non-credit) or proficiency (credit) examination or by completing 6 credits of the introductory sequence, (or an approved equivalent) in that language; and 8 hours of literature in English (originally in English or in translation) drawn from the list of courses published by the Committee on Language, Literature and the Arts, available in the Liberal Arts Advising Center.
(iii) 24 hours in an integrated program in literature, culture, and/or the arts, focusing either on (1) a particular nation or area other than the United States, or (2) a comparative study of literary and artistic modes, genres, or movements. Suggested programs are published by the Committee on Language, Literature, and the Arts and are available in the Liberal Arts Advising Center; students must also propose individual programs to the committee for consideration.

Note: In options (i) and (ii), those who take the diagnostic examination will not receive credit toward graduation but will be exempted from the portion of the requirement satisfied by the examination. Those who take the proficiency examination may earn up to 16 hours of credit toward graduation for previous study of the language, in addition to the credit they earn for course work undertaken in the College. Normally two years of high school language study is regarded as equivalent to one year of college study. Students who have had four years of high school study of the same language should be able to satisfy the requirement for intermediate-level competence in either option by examination and those who have had less than four years of study may be able to satisfy a portion of the requirement in this way, thus reducing the time required to satisfy this requirement. Full credit toward graduation is given for any language study undertaken successfully in the College regardless of the amount of previous study of that language.

Students who have had less than two years of study of the same language in high school are admitted with an entrance deficiency. Satisfactory completion of the final quarter of the first year sequence of college level foreign language study, normally in the freshman year, is necessary to remove this deficiency.

(2) History and Society
Each student must complete 24 hours of course work in this area including:
(a) One 8-hour sequence from the several survey courses offered by the Department of History or in a comprehensive interdisciplinary sequence having a substantial emphasis in history.
(b) 8 hours in courses with emphasis on man and society which are not primarily historical in nature;
(c) The remaining hours may be taken in either category (a) or (b).
A list of courses which satisfy this requirement is published by the Committee on History and Society and is available in the Liberal Arts Advising Center.

(3) Science and Mathematics
Each student must complete 24 hours of course work in this area, including:
(a) One of the following two options:
(i) An 8-hour sequence in a biological science; or
(ii) An 8-hour sequence in a physical science.
(b) 16 hours drawn from additional courses offered by the College of Science and Mathematics and/or physical sciences or from designated courses in:
(iii) The history, philosophy, or social impact of science;
(iv) Mathematics and logic.
No more than 16 hours may be applied toward this requirement from any one of the above four categories.
A list of courses which satisfy this requirement is published by the Committee on Science and Mathematics and is available in the Liberal Arts Advising Center.

B. THE MAJOR CONCENTRATION
In many ways the most important part of each student's program is the major concentration, for it is in this intensive study of one more or less limited field of knowledge that the individual begins to find a niche in the world of intellectual endeavor. The major concentration may be drawn from the offerings of a single department, or it may bring together related concerns of two or more departments. In either case the student should work out a program of study which has a definite design and aims at some overall objective. Guidelines are published by each major department or interdepartmental committee to assist the student in ascertaining goals and to provide a framework within which to develop a particular program. Additional assistance in the form of personal guidance is available in the Liberal Arts Advising Center and from designated faculty advisors in each major department or area.

Requirements for the specified majors available to students in the Basic Program vary from a minimum of 36 to a maximum of 56 credit hours in courses numbered 2000 and above, including prerequisites and corequisites (i.e., supporting courses in other departments or areas). Insofar as is consistent with the objective of a total program balanced reasonably between broad area requirements in the Triad, the major concentration, and supplementary courses, the student may elect as many courses as desired in any department or area.

Majors available in the Basic Program:
- Anthropology
- Art
- Audiology
- Biology
- Botany
- Chemistry
- Computer Science
- Cultural Studies
- Economics
- English
- French
- Geography
- Geology
- German
- Greek
- History
- Human Services
- Zoology

C. SUPPLEMENTARY ELECTIVE COURSES
At least one-fourth of each student's curriculum in the Basic Program will be made up of courses selected according to the individual's interests to supplement and support the work being done in the major concentration and in the Triad. This dimension of the student's experience in the University represents that freedom within which total education may be rounded out and enriched. Elective courses should be chosen with care so that they will truly enhance the student's total program and help in the achievement of well thought-out educational objectives.

Some of the courses which the student might make in selecting the elective courses are:
(1) Additional courses in the major field;
(2) A related minor concentration in another department or area or in another college of the University (24 or more credit hours in courses numbered 2000 or above; see Note below);
(3) A concentration in the arts;
(4) An off-campus quarter;
(5) The student's imagination and initiative and the willingness to conceive and develop a totally meaningful academic program limit the choices of supplementary elective courses.

Note: Minors are available in most of the departments and areas in which majors are offered, and also in the following:
- Asian Studies
- Biochemistry
- Black Studies
- Comparative Literature
- Latin American Studies
- Linguistics
- Mathematics
- Physical Sciences
- Portuguese
- Women's Studies

*See Phi Beta Kappa requirements in mathematics, page 32.*
Minors may be developed in other colleges of the University, but they must be approved by petition. Students transferring from other institutions must complete at least 6 of the 24 credit hours required for a minor at The University of Tennessee, Knoxville.

II. Individualized Program

The Basic Program described above will meet the educational needs of most of the students enrolled in College of Liberal Arts. Some, however, come with particular strengths in their preparation or with special interests which do not coincide with the departmental or interdepartmental majors specified in the Basic Program. For these students the Individualized Program has been established as a means of attaining a closer correlation between student needs and academic programs.

Students in the Individualized Program will normally satisfy the broad requirements of the Triad, just as those in the Basic Program do, although some latitude is provided for substitutions approved by the student's advisor and the dean of the College. The point at which the greatest degree of individualization takes place, however, is in the area of concentration. Although the quantitative aspect of the area of concentration is the same as for the major in the Basic Program (i.e., a minimum of 39 hours in courses numbered above 2000), there is no restriction in principle on the choice of courses of which it is comprised. The student may design a program, in consultation with an advisor, and submit it for consideration to the Committee on the Individualized Program. The proposed course of study must have some clear central purpose, usually implemented through intensive work in two or three departments; an undirected scattering of courses will not be approved. For further information consult the program director, Dr. Harry Jacobson (Ayres Hall).

III. College Scholars Program

A limited number of freshmen, entering transfers with less than 60 credit hours, and resident students with less than 90 credit hours are invited each year to enter this distinguished honors curriculum. Selection is based on previous academic records, test scores, recommendations, a written essay, and a personal interview. Admission is provisional for two quarters; continuation depends upon maintenance of a satisfactory record (a normal 3.25 or above) and evidence of ongoing motivation and interest.

The College Scholars Program affords the high-achieving student the opportunity to develop a meaningful curriculum. Each program is worked out individually with a special advisor (tutor) who under ordinary circumstances continues to advise the student throughout the college career. Together they determine what kinds of course work and/or other learning experiences will best fulfill the student's objectives, while at the same time achieving the kind of liberal education the College believes is important for every student. In the final two years of the program students will be heavily involved in independent study or research resulting in a senior honors thesis or project report.

Further information and applications may be obtained from the program director, Dr. Harry C. Jacobson, 226 Ayres Hall.

IV. Preparation For The Health Professions

Pre-Dental
Pre-Dental Hygiene
Pre-Medical
Pre-Medical Record Administration
Pre-Medical Technology
Pre-Nursing
Pre-Pharmacy
Pre-Physical Therapy
Other Health Professions

Pre-health professional programs are available for students who plan a career in one of the health professions. The programs preparing students for the study of medicine, dentistry, and pharmacy include the specified courses required for admission to the respective colleges of the University of Tennessee at Memphis (UTCHS), as well as those required for the Bachelor of Arts degree in the College of Liberal Arts at UT, Knoxville. The pre-medical technology program prepares students to undertake professional training during the fourth year of study at the University of Tennessee Center for the Health Sciences at Memphis. Other pre-health professional programs—dental hygiene, medical record administration, nursing, pharmacy, and physical therapy—are offered for those students who are planning to pursue professional training in health professional areas which lead to an undergraduate degree from UTCHS but not to a degree from UT.

NOTE: The UT Center for the Health Sciences is a state-supported institution and by legislative intent is required to admit all qualified Tennesseans prior to considering out-of-state applicants. At the present time there are more qualified Tennessee applicants than there are places available; therefore, out-of-state applications are not being considered. The only exception to this policy is the non-resident applicant who is the son or daughter of an alumnus or alumna of the UT Center for the Health Sciences and who has completed all of the undergraduate work at a college in the University of Tennessee system and is otherwise qualified competitively.

Admission to any program at the UT Center for the Health Sciences or to the Medical Technology Program at the UT Memorial Research Center and Hospital is at the discretion of that program's admissions committee. Admission to the University of Tennessee, Knoxville, and completion of a pre-health professional program in the College of Liberal Arts does not assure admission to any professional training program.

Because the competition for admission to most programs in the health professions is keen, pre-health professional students are encouraged to work towards the completion of a degree program in a major which will enable the individual to adapt to an alternative program in the event admission to the desired program is not achieved. The preparatory courses necessary for professional study can be incorporated into the chosen major program.

Students in a pre-health professional program should consult with a health professional advisor in the Liberal Arts Advising Center (220 Ayres Hall) or the Coordinator of the Health Professions Office (218 Ayres Hall) for more information about the programs outlined below. Bulletins describing the various pre-health professional programs, including a detailed statement of requirements, may be obtained from the Health Professions Office, 218 Ayres Hall.

PRE-DENTAL PROGRAM

The College of Liberal Arts offers both three-year and four-year programs leading to the degree of Bachelor of Arts for students preparing for dental school. Therefore, both programs are based upon the curriculum outlined below. In the three-year program the student must complete at least 135 credit hours while enrolled in the College of Liberal Arts, and the B.A. degree is granted upon satisfactory completion of the first year of study at the UT Center for the Health Sciences. In the four-year program the degree is granted upon completion of 180 or more credit hours while enrolled in the College, including a major of 36 or more hours in addition to the courses listed below. The requirement for a major is waived for those completing their fourth year at Memphis. Students in either the three- or four-year program must complete the last 45 hours of credit in residence at the University of Tennessee, Knoxville, before entering the UT Center for the Health Sciences.

Although the B.A. degree is not required for admission to the College of Dentistry at Memphis, most of the students accepted into the study of dentistry have the baccalaureate degree before enrollment. Pre-dental students are encouraged to plan to complete all requirements for the B.A. degree before enrolling in the College of Dentistry.

**Freshman**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1510-20</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Mathematics 1100-1500</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>1400-50</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Triad I (Language, Literature &amp; The Arts)</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Triad II (History and Society)</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

**Sophomore**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology 1210-20-30 or Zooology 1118-28-38</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Chemistry 3211-21-31 and</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Mathematics 1410-1500</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>1530-50</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Triad I</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Triad II</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

**Junior**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics 2210-20-30</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Speech 2311</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Biology and/or Zoology</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Triad I</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Triad II</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

(Total 135)

*Students wishing to prepare for professional training at institutions other than The University of Tennessee Center for the Health Sciences should consult the catalogs of those institutions to determine the specific preparation required for admission.*
PRE-DENTAL HYGIENE PROGRAM

A Bachelor of Science Degree in Dental Hygiene is granted by the UT Center for the Health Sciences upon completion of a program which includes 96 hours of prescribed courses in the College of Liberal Arts and 6 quarters of study at Memphis. Students interested in the pre-dental hygiene program are encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Director of the Health Professions Office for more information. Bulletins describing the pre-dental hygiene program and requirements in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

PRE-MEDICAL PROGRAM

The College of Liberal Arts offers both three-year and four-year programs leading to the degree of Bachelor of Arts for students preparing for the study of medicine. Both programs are based upon the program outlined below. In the three-year program the student must complete at least 135 credit hours while enrolled in the College, including a major of 36 or more hours in addition to the courses outlined below. The requirements for a major is waived for those taking their fourth year at Memphis. Students in either the three- or four-year program must complete the last 45 hours of credit in residence at the University of Tennessee, Knoxville, before entering the UT Center for the Health Sciences.

Although the B.A. degree is not required for admission to the College of Medicine, most students accepted into the study of medicine have the baccalaureate degree before admission. Therefore, pre-medical students are encouraged to plan to complete all requirements for the degree before enrolling in the College of Medicine.

PRE-MEDICAL RECORD ADMINISTRATION PROGRAM

Admission to the medical record administration program at the UT Center for the Health Sciences, leading to a Bachelor of Science degree from UTCHS at Memphis, requires completion of 135 hours of prescribed courses. Classes are admitted in September; applications must be filed by April 15. The selection process usually includes interviews with members of the faculty.

Students interested in the pre-medical record administration program are encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for more information. Bulletins describing the medical record administration requirements and program in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

PRE-MEDICAL TECHNOLOGY PROGRAMS

The College of Liberal Arts offers two programs leading to the study of medical technology:

1. The Science-Medical Technology Curriculum leading to a Bachelor of Arts degree with a major in medical technology from UTCHS.

2. The Pre-Medical Technology Program leading to a degree of Bachelor of Science in medical technology from UTCHS at Memphis.
encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for specific requirements for admission.

Bulletins describing both pre-medical technology programs and requirements in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

PRE-NURSING PROGRAM

The minimum requirement for admission to the College of Nursing at the UT Center for the Health Sciences is 48 hours of prescribed courses in the College of Liberal Arts. The program at Memphis, which leads to the Bachelor of Science in Nursing from UTCCHS, is three years in length.

Registered nurses who wish to work for a degree of Bachelor of Science in Nursing must complete 54 hours of prescribed courses to qualify for admission with advanced standing.

Students interested in the pre-nursing program are encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for more information. Bulletins describing the pre-nursing program in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

Note: A degree program in nursing is also available at the University of Tennessee, Knoxville, through the School of Nursing. Information may be obtained from the Dean of the School of Nursing.

PRE-PHARMACY PROGRAMS

The College of Liberal Arts offers three programs preparing students for the study of pharmacy at the UT Center for the Health Sciences in Memphis. The Bachelor of Science in Pharmacy degree is conferred by UTCCHS upon completion of three years of professional study at Memphis following any of the three programs.

The two-year program prepares students to be admitted to the College of Pharmacy upon completion of 90 hours of a prescribed course of study in the College of Liberal Arts. Further information may be obtained from the Health Professions Office, 218 Ayres Hall.

The three-year and four-year programs, which lead to a Bachelor of Arts degree from the University of Tennessee, Knoxville, as well as to the professional degree in pharmacy from the UT Center for the Health Sciences, are based upon the program outlined below. In the three-year program, the student must complete at least 155 credit hours while enrolled in the College of Liberal Arts, and the B.A. degree is granted upon satisfactory completion of the first year of study at Memphis. In the four-year program the degree is granted upon completion of 180 or more credit hours while enrolled in the College, including a major of 36 or more hours in addition to the courses outlined below. The requirement for a major is waived for those taking their fourth year at Memphis. Students in either the three- or four-year program must complete the last 45 hours of credit in residence at the University of Tennessee, Knoxville, before enrolling in the College of Pharmacy.

Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1510-20</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Chemistry 1110-20-30</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Mathematics 1100 &amp; 1108</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Psychology 2500</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Triad I (Language, Literature &amp; the Arts)</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Triad II (History &amp; Society)</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology 1210-20-30 or</td>
<td>8</td>
</tr>
<tr>
<td>Zoology 1110-28-38</td>
<td>12</td>
</tr>
<tr>
<td>Chemistry 1310-1211</td>
<td>12</td>
</tr>
<tr>
<td>Speech 2311</td>
<td>4</td>
</tr>
<tr>
<td>Triad I</td>
<td>8</td>
</tr>
<tr>
<td>Triad II</td>
<td>8</td>
</tr>
<tr>
<td>Elective</td>
<td>4</td>
</tr>
</tbody>
</table>

Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting 2110</td>
<td>3</td>
</tr>
<tr>
<td>Physics 2210-20</td>
<td>8</td>
</tr>
<tr>
<td>Triad I</td>
<td>8</td>
</tr>
<tr>
<td>Triad II</td>
<td>8</td>
</tr>
<tr>
<td>Electives</td>
<td>12</td>
</tr>
</tbody>
</table>

Total (135) 39

Senior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion of major program and B.A. requirements</td>
<td>45</td>
</tr>
<tr>
<td>Completion of one year at the UT Center for the Health Sciences</td>
<td>45</td>
</tr>
</tbody>
</table>

Bulletins describing the three pre-pharmacy programs in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

1. Optional or equivalent honors courses.
2. The College of Pharmacy requires a minimum of 6 hours of English or foreign language in addition to English 1510-20.
3. The College of Pharmacy requires a minimum of 6 hours in social science in addition to Psychology 2500. The remaining hours may include courses chosen from economics, history, political science, psychology, or sociology.
4. Recommended electives include Classics 2170 and 2270 and courses in business administration, particularly accounting, economics, and marketing.

PRE-PHYSICAL THERAPY PROGRAM

Admission to the physical therapy program at the UT Center for the Health Sciences, leading to the degree of Bachelor of Science in Physical Therapy from UTCCHS, requires completion of 120 hours of prescribed courses while enrolled in the College of Liberal Arts. The program in Memphis is 15 months in length. Students interested in the pre-physical therapy program are encouraged to consult with a health professions adviser in the Liberal Arts Advising Center or the Coordinator of the Health Professions Office for more information. Bulletins describing the physical therapy program in detail may be obtained from the Health Professions Office, 218 Ayres Hall.

OTHER HEALTH PROFESSIONS

Cytotechnology
Histotechnology
Optometry
Radiologic Technology
Veterinary Medicine

A library of materials about career opportunities in the health professions, including most allied health areas, has been developed and is located in the Health Professions Office, 218 Ayres Hall. Academic advisers are available to assist students in planning their programs in order to meet the requirements for admission to other programs.

Bachelor of Fine Arts

The Bachelor of Fine Arts degree represents intensive study preparing the student for graduate programs and careers relating to art. A minimum of 180 credit hours are required for graduation. Although there are no specific course requirements within the major, guidelines for the following recommended programs are available in the departmental office: (1) communication design, (2) drawing, (3) painting, (4) oil, (5) watercolor, (6) printmaking, and (7) sculpture. Transfer students are advised that a minimum of 28 credit hours in studio courses and 8 upper division credit hours in art history must be earned on the Knoxville campus. The Bachelor of Fine Arts degree and its major will be recorded as follows:

Bachelor of Fine Arts
Major: Studio Art

Core Curriculum:
The core program is required of all B.F.A. candidates. It is designed to give a broad art background, in both studio and art history, at the earliest possible time. This background, during the freshman and sophomore years, gives a foundation upon which the student may build, and an opportunity to become acquainted with the various artistic disciplines. This gives each student the understanding to better plan his or her own program during the remaining two years. Unless otherwise stated, the core program is nonsequential, but should be completed by the end of the first two years. Core courses are as follows:

Art History: Hours Credit
Art 2715...4
A minimum of 13 hours other art history courses...13

Studio:
Art 1115 Studio Fundamentals: Drawing and the Illusion of Space...4
Art 1125 Studio Fundamentals: Surface Composition and Color...4
Art 1135 Studio Fundamentals: Real Space and Volume...4
Art 2105 Introduction to Drawing...4
Art 2205 Introduction to Painting...4
Art 2405 Introduction to Sculpture...4
Art 2505 Introduction to Communication Design...4
Art 2605 Introduction to Printmaking...4

48 hours

*Prerequisite to 2000 level courses for B.F.A. program.

General Curriculum:
In addition to the core program, B.F.A. candidates must fulfill the following general requirements:

A. Triad Courses
I. Language, Literature and the Arts
   A minimum of 8 hours English Composition...8
   II. History and Society
   A minimum of 8 hours...8
   III. Science and Mathematics
   A minimum of 8 hours...8

24 hours
credit hours, including the specified courses outlined below.

**Note:** In addition to the concentrations offered in the Bachelor of Music curriculum, a major in music with a concentration in either music history and literature or applied music is available in the Bachelor of Arts curriculum.

**MUSIC THEORY**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Freshman</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Music 1118-26-38</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Music 1213-23-33</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music 1340</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Applied Music</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Ensemble</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Liberal Arts Electives</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Music 2000</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td><strong>Sophomore</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music 2118-28-38</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Music 2113-23-33</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music 2599</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Applied Music</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Ensemble</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Liberal Arts Electives</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Music 2000</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td><strong>Junior</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applied Music</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music 3111-21-31</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Music 3112-22</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music 3113-23</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Music 4112 or 4115</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music 4121 or 4141</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Ensemble</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music History/Literature</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>(3000-level and above)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music 2000</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td><strong>Senior</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music 4100</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music 4111</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music 4112 or 4115</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Music 4121 or 4141</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music 4131</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Applied Music</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music Electives</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music 3199</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music 2000</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

**TOTAL: 180 hours**

**COMPOSITION**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Freshman</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Music 1118-26-38</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Music 1213-23-33</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music 1340</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Applied Music</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Ensemble</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music 2000</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td><strong>Sophomore</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music 2118-28-38</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Music 2113-23-33</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music 2310-23-33</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music 2599</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Applied Music</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Ensemble</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Liberal Arts Electives</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Music 2000</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

**TOTAL: 180 hours**

**MUSIC HISTORY AND LITERATURE**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Freshman</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Music 1111-21-31</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Music 1213-23-33</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music 1340</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Applied Music</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Ensemble</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Art 1815-25</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Foreign Language (French or German)</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Music 2000</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td><strong>Sophomore</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music 2111-21-31</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Music 2113-23-33</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music 2310-20-30</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Applied Music</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Ensemble</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Physics 1810</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Foreign Language (French or German)</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Music 2000</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td><strong>Junior</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music 2340</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music 3112</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music 3113-23</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Music 4260</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music History/Literature</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>(3000-level and above)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music 2000</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td><strong>Senior</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music 4230</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music 4240</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Ensemble</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Comparative Literature or Religious Studies</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Music History/Literature or Theory Electives (3000-level and above)</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Applied Music</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Music History/Literature</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>(3000-level and above)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL: 180 hours**

**College of Liberal Arts**

**Junior**

- Music 2340: 3
- Music 2311-21-31: 9
- Music 2312-22-33: 6
- Music 3131-23: 9
- Applied Music: 3
- Music 3599: 9
- Ensemble: 3
- Electives: 0
- Music 3199: 3
- Music 2000: 0

**Senior**

- Music 4111: 3
- Applied Music: 3
- Music 4141: 3
- Music 4199: 9
- Ensemble: 3
- Liberal Arts Electives: 4
- Electives: 12
- Music History/Literature: 3
- Electives (3000-level and above): 6
- Music 2000: 0

**TOTAL: 180 hours**

**Notes:**
- Each College Artist will normally enroll in one honors or departmental honors course each quarter, and must participate in an honors exhibition prior to graduation.

**STUDIO HONORS COURSES**

Courses are designed for the exceptional student. Honors courses may be taken in any of the areas of studio instruction, and admittance is based on the following criteria:

- A. Grade-point average of 3.2 in studio art courses
- B. Portfolio of class and/or outside work
- C. Recommendation of the Studio faculty, and/or approval of the instructor

- Continued participation is subject to periodic review by the faculty. Students qualified for honors courses will enroll in course numbers which most closely parallel their present level, i.e., sophomores in 2008, juniors in 3008, seniors in 4008. Each course number may be repeated for a maximum of 24 hours credit.

**Bachelor of Music**

The Department of Music offers the degree of Bachelor of Music with concentrations in music theory, composition, music history and literature, piano literature, and applied music (voice—piano—organ—strings—woodwind, brass and percussion instruments—multiple woodwind instruments). The study is designed to prepare students for graduate study or for positions in music for which a professional degree is required.

Students who plan to work for this degree are assigned an adviser in the Department of Music at the time they enter the program. Continuation in the program at the 3000 level requires the achievement of an average of 2.5 or better in all music courses taken. The minimum requirement for the degree is 180 hours.
## PIANO LITERATURE

<table>
<thead>
<tr>
<th>Level</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Music 1111-21-31</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Music 1113-23-33</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Music 1340</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Senior Applied Study</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Music 3699</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Senior Recital</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Music Electives</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Liberal Arts Electives</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Music 2000</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music 2111-21-31</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Music 2113-23-33</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Music 2310-20-30</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Senior Applied Study</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Music 3699</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Senior Recital</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Music Electives</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Liberal Arts Electives</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Music 2000</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Junior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music 2340</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Music 3113-23</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Music 3040-50-60</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Senior Applied Study</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Music 3699</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Senior Recital</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Music Electives</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Music 2000</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL: 180 hours**

## VOICE

<table>
<thead>
<tr>
<th>Level</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Music 1111-21-31</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Music 1113-23-33</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Music 1340</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Senior Applied Study</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Music 1010-20-30</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Music 2055-65-75</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Ensemble</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Music 2000</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music 2111-21-31</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Music 2113-23-33</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Music 2310-20-30</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Senior Applied Study</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Music 1040-50-60</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Ensemble</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Theatre 211</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Liberal Arts Electives</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Music 2000</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Junior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music 2340</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Music 3113-23</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Senior Applied Study</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Ensemble</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Junior Recital</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Foreign Language (French, Italian, or German)</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Theatre 2121</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Music 2000</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Senior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music 3012-22-32</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Music 4012-22-32</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Senior Applied Study</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Ensemble</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Senior Recital</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Foreign Language (French, Italian, or German)</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Music 2000</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL: 180 hours**

## ORGAN AND CHURCH MUSIC

<table>
<thead>
<tr>
<th>Level</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Music 1111-21-31</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Music 1113-23-33</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Music 1340</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Senior Applied Study</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Music 2111-21-31</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Ensemble</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Junior Recital</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Liberal Arts Electives</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Music 2000</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Sophomore</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music 2111-21-31</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Ensemble</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Junior Recital</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Liberal Arts Electives</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Music 2000</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Junior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Music 2310</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Music 3113-23</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Music 3041-51-61</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Music 4074-84</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Senior Applied Study</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Music 1340</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Senior Recital</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Liberal Arts Electives</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Music 2000</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL: 180 hours**

## STRINGS

<table>
<thead>
<tr>
<th>Level</th>
<th>Hours</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English 1510-20</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Music 1111-21-31</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Music 1113-23-33</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Music 1340</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Senior Applied Study</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Music 2111-21-31</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Ensemble</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Junior Recital</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Liberal Arts Electives</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Music 2000</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL: 180 hours**
### Bachelor of Science in Chemistry

Students who desire major in chemistry may either select the curriculum leading to the degree of Bachelor of Arts or that leading to the degree of Bachelor of Science in Chemistry. This latter program is approved by the American Chemical Society and is designed to train students to go directly into positions in the chemical industry or to enter graduate study leading to positions in research and college teaching. A minimum average of C must be made on all chemistry courses applied toward the Bachelor of Science in Chemistry degree.

#### COOPERATIVE PROGRAM IN CHEMISTRY

A cooperative program is available to students in the B.S. in Chemistry curriculum. After the freshmen year the student alternates a quarter in school with a quarter in a job in a chemical industry. The program normally requires five years and involves a total of seven work quarters and twelve school quarters. Students are required to have at least a 2.5 average to enter and remain in the program. Some opportunity exists for students to enter the program later than the end of the freshman year. Students interested should make application to the head of the department at least one quarter in advance of the beginning of the first work period. Further information will be supplied on request.

### CURRICULUM REQUIREMENTS

#### Freshman

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 1110-20 or 1118-28</td>
<td>8</td>
</tr>
<tr>
<td>Mathematics 1440-20 or 1848-58</td>
<td>12</td>
</tr>
<tr>
<td>English 11-1-29</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td>TOTAL: 180 hours</td>
<td></td>
</tr>
</tbody>
</table>

#### Sophomore

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 2140-49</td>
<td>4</td>
</tr>
<tr>
<td>Chemistry 3410-20</td>
<td>9</td>
</tr>
<tr>
<td>Chemistry 4310-20</td>
<td>3</td>
</tr>
<tr>
<td>Computer Science 3150</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
</tr>
<tr>
<td>TOTAL: 180 hours</td>
<td></td>
</tr>
</tbody>
</table>

#### Junior

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemistry 4110</td>
<td>3</td>
</tr>
<tr>
<td>Chemistry 4119</td>
<td>1</td>
</tr>
<tr>
<td>Chemistry 4310-20</td>
<td>3</td>
</tr>
<tr>
<td>Computer Science 4410</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td>6</td>
</tr>
<tr>
<td>TOTAL: 180 hours</td>
<td></td>
</tr>
</tbody>
</table>

*Foreign language option is recommended in the order German, Russian, or French. A foreign language beyond 1510-20 is recommended.

*German language is recommended in the order German, Russian, or French. A foreign language beyond 1510-20 is recommended.

### Preparation For Other Professions

#### Law

Students who plan to study law should consult the statement regarding admission to the College of Law (page 163) and discuss their programs with advisers in the Liberal Arts Advising Center.

#### Library Science

Certain courses in the Graduate School of Library and Information Science are open to students in the College of Liberal Arts interested in beginning positions in a library or in preparation for future graduate study in professional librarianship. For further information, see page 43 or consult the
Application for admission to the Teacher Education Program should be made during the second or third quarter of the sophomore year in the office of the Dean of the College of Education, 212 Claxton Education Building. Criteria for admission are: (1) a 2.2 cumulative grade-point average; (2) satisfactory ratings in speech and hearing as determined by tests administered by the Speech and Hearing Center; (3) recommendation of the student’s adviser.

One quarter during the senior year must be reserved for student teaching (Education C&I 4710-20). Application for student teaching must be filed not later than January 1 of the year preceding the academic year in which the student teaching will be undertaken. Those planning to teach during the 1978-79 academic year must apply by January 1, 1978. Curricula for students seeking teacher certification should include the following:

1) English 1510-20 or 1518-28
2) 18 hours, representing at least 3 fields, including:
   (a) 4 hours of 2000-level English
   (b) 12 hours of the students choice from anthropology, art, English literature, Library and Information Science 3510-20, foreign language (beyond the elementary level), history (upper division), music, philosophy, or religious studies
3) Language, literature, and the Arts: 0-24 hours, the number of hours and choice of courses depending upon the options selected and the choices made in (2) above
4) History and Society:
   (a) One of the 8-hour historical sequences in category (a) of the triad list
   (b) Psychology 2500 or 2518
   (c) 4 hours from anthropology, economic geography, human services, political science or sociology courses on the triad list
   (d) 0-8 additional hours of the student's choice from courses on the triad list, the number of hours depending upon choices made in (2) above
5) Science and Mathematics:
   (a) One of the 8-hour natural science sequences in category 1 or 2 of the triad list
   (b) 4 additional hours of natural science courses in categories 1 and 2
   (c) 4 hours of mathematics courses in category 4
   (d) 8 additional hours of the student's choice from courses on the triad list
6) Speech 2311
7) 7 hours in health and physical education, including at least 3 hours of school health, public health, or nutrition and 2 hours of physical education
8) Professional Education courses:
   (a) Education C&I 3010-20-30
   (b) Educational Psychology 3810
   (c) 6 hours of appropriate methods courses
   (d) Education C&I 3521-22-23
   (e) Education C&I 4710-20 (student teaching)
   (f) 6 hours of electives from the College of Education
9) Additional courses necessary to complete Liberal Arts major(s)
10) Additional courses required for certification in teaching subject area(s) (Consult Certification Clerk, 212 Claxton Education Building)

11) Electives to reach total of 180 hours, including at least 60 upper division hours, required for graduation

NOTE: The same course may be applied both to certification requirements and to triad or major requirements of the College of Liberal Arts.

Admission to the Teacher Education Program is prerequisite for Education C&I 3010, 3030, and 4710-20.

Theology

Students planning to study theology should follow one of the Bachelor of Arts curricula. Any liberal arts major is acceptable for admission to most theological schools; strong preparation in literature, philosophy, history, religious studies, and social science is desirable. Students may wish to consult with faculty members in the Department of Religious Studies in planning their programs.

General Information

Admission to the College

For information regarding admission to the College of Liberal Arts, see page 16.

Course Load

The average course load in the College for any quarter is 14-16 credit hours. The University defines full-time undergraduate students as those who register for a minimum of 12 hours. The maximum number of hours which may be taken by Liberal Arts students is 17, exclusive of elective work in ensemble music and physical education. Exceptions to this rule will require approval by the Assistant Dean for Student Affairs (218 Ayers Hall).

The 17 credit limit was one of three means chosen to implement a 1972 decision by the College faculty to reduce the average number of courses carried by students. A second means has been to introduce four-credit courses into the curriculum on a broader scale than ever before. Using such courses the credits achieved by students each quarter would remain substantially the same as in quarters prior to this innovation but would be generated with fewer courses. A final means has been to decrease the total number of hours required for the degree. The purpose of the load reduction is to provide an opportunity for a deeper, more thorough learning experience in the courses which are taken.

Lower Division—Upper Division

Courses numbered at the 1000 and 2000 levels are considered Lower Division and are normally taken by students in the freshman and sophomore years. Courses numbered 3000 and above are Upper Division and are designed for students at the junior and senior level.

Satisfactory/No Credit Courses

A few courses in the College are offered only on a Satisfactory/No Credit basis and students may elect to take others on this basis, except in areas where the option is specifically prohibited. Such courses, if
departments may limit the number of hours which may be applied toward a specific major.

Independent Study

Certain educational goals may best be met through independent study done by an individual under the direction of a faculty member. Students who wish to do such independent work should obtain the approval of the faculty members and the departments concerned prior to embarking upon the study. Credit per quarter will vary from 1-16 hours. Up to 24 hours of credit earned in this way may be applied toward a degree in the College of Liberal Arts, although individual

Study Abroad and Foreign Study Courses

Several opportunities for study abroad are available to students in the College of Liberal Arts. One avenue is through group programs arranged and supervised by departments of the College on a full-quarter or summer-term basis. A second is through group programs conducted as they have been by academic institutions to which UTK students may with approval enroll for credit. Assistance in identification and registration in such programs may be obtained through the Overseas Study Information Service located in the University's Division of International Education. A third opportunity is through individualized programs under the foreign study number 4101. The nature of this work as well as credit for it should be negotiated by students prior to departure with the appropriate Liberal Arts departments. Credit will be awarded only after completion of all agreed upon requirements, and may vary from 1-16 hours in any one department. Up to 24 hours of such credit, exclusive of that earned in group programs offered by departments, could apply toward a degree in the College. Departments may in any of the above forms, however, limit the hours of credit which can be applied toward a given major.

Liberal Arts Advising Center

Academic advising for students of the College is offered through the Liberal Arts Advising Center, 220 Ayres Hall, as well as through the several major departments. The Advising Center is staffed on a regularly scheduled basis by members of the College faculty, each of whom has been trained for this specialized work. Students in their first quarter of residence are assigned to the Advising Center, where they may relate themselves to a particular adviser of their choice or consult the person on duty at the time they need assistance. Most students continue in this relationship with the Advising Center until they have graduated their major, normally by the beginning of the junior year, at which time they may be transferred for advising to a faculty member in the major department.

Student Academic Affairs Office

Academic assistance for students is also provided through the Student Academic Affairs Office, 218 Ayres Hall. This office serves primarily those students not assigned to the Liberal Arts Advising Center, helping

Office of Black Studies

The Office of Black Studies, 812 Volunteer Blvd., cooperates with the various departments and colleges of the University with respect to the development of curricular changes and innovations which incorporate the Black experience into academic and extracurricular programs of the institution, supplies information on financial assistance for Black students, and serves as the focal point for the coordination and development of an improved and expanded Black Studies Program at the University.

Black Cultural Center

The Black Cultural Center represents one effort by the University to promote greater awareness of the nature of the Black experience and the contribution of Black America to the national past. The Center seeks to fulfill this role through a variety of programs and occasions. Typical of its cross-campus work is sponsorship of Black History Week, and the Black Arts Festival. Within the Center itself exhibits related to the Afro-American past, small group lectures, group study sessions, and a tutorial program aimed especially at minority students are a few of the ongoing activities.

The Center is located at 812 Volunteer Blvd. All members of the University community are invited to visit this location and utilize the opportunities provided by the Center for increased knowledge about the Black experience. For further information contact the Director.

Bureau of Public Administration

The University has established in the College of Liberal Arts a Bureau of Public Administration, for the purpose of promoting sound governmental administration through research, publication, and consultation. Offices and staff are maintained in both Knoxville and Nashville. The head of the Department of Political Science serves as Director of the Bureau of Public Administration.

Psychological Clinic

The Psychological Clinic is an outpatient psychodiagnostic and treatment center established by the University within the Department of Psychology. It provides advanced graduate training for students in clinical psychology and also serves as a training facility for graduate students in the School of Social Work. Referrals for treatment come from many sources, including self-referrals and referrals by relatives and friends and by various social and mental health agencies. Treatment services are available to anyone regardless of residence, sex, age, race, or citizenship.
University Theatres
The Department of Speech and Theatre offers a full schedule of dramatic presentations in three different theatres. The Clarence Brown Theatre has outstanding facilities for prosenium and open staging and for film productions, and, in a separate Studio Theatre, for laboratory productions. Carousel Theatre is designed for arena staging, and can be converted for open-air performances in the summer. Hunter Hills Theatre, located in the foothills of the Great Smoky Mountains near Gatlinburg, is an outdoor theatre in which performances are offered during the summer months.

Instructional Facilities
The College of Liberal Arts carries out its varied teaching and research activities in more than two dozen principal buildings in two areas of the campus, as well as in a number of converted residences which provide office, studio, or clinical space. The older of the two clusters of buildings is on "The Hill," and includes Ayres Hall (psychology and mathematics), Austin Peay (psychology), Heister (biological sciences), Physics (physics and astronomy), Geology-Geography (geology and geography), and Dabney and Buehler (chemistry). West of "The Hill" is a recently built group of buildings for the humanities, social sciences, and fine arts: McClung Tower and the Humanities-Social Sciences classroom building (classics, English, foreign languages, history, human services, philosophy, political science, religious studies, sociology, and speech and theatre), the Music Building (music), and the Hearing and Speech Center (audiology and speech pathology). In this area also are the McClung Museum and the Clarence Brown and Carousel Theatres, as well as the Undergraduate Library. Anthropology is housed in South Stadium, and art utilizes several small buildings for its studios.

College Offices
The College Administrative Office is in 226 Ayres Hall and houses the office of the Dean/Associate Dean as well as the office of Curriculum and Special Programs. The Student Academic Affairs Office is in 218 Ayres Hall. The Liberal Arts Advising Center is in 220 Ayres Hall.

Departments of Instruction
Numbers in parentheses following the course titles indicate quarter hours credit offered.

American Studies
See Cultural Studies.

Anthropology (122)

Professors: W.M. Bass (Head), Ph.D. Pennsylvania; C.H. Faulkner, Ph.D. Indiana; A.K. Gute, Ph.D. Michigan; P.W. Parmalee, Ph.D. Texas A&M.

Assistant Professors: J.M. Bishop, M.A. California (Berkeley); R.W. Kirsch, M.A. Penn State; M.H. Logian, Ph.D. Penn. State; F.H. Smith, Ph.D. Michigan.


UNDERGRADUATE
A major in anthropology shall consist of 39 hours, 12 of which are to be in the introductory 2000 level courses. Of the remaining 27 hours, 4480 and six hours of 3000 level or above courses are required in each of these subfields: (a) Cultural; (b) Physical; and (c) Archaeology.

(a) Cultural: 3410, 3440, 3510, 3530, 3540, 3710, 3800, 4200, 4210, 4240, 4250, 4259, 4410, 4420, 4430, 4500, 4510, 4550, 4570, 4590, 4740.
(b) Physical: 3900, 3920, 3930, 4390, 4930, 4950, 4960, 4970.
(c) Archaeology: 3610, 3620, 3630, 3640, 4500, 4600, 4640, 4860.

A minor in anthropology consists of 27 hours including the 3 hrs. 2510, 2520, 2530 introductory courses.

2510 Human Origins (4) Non-technical survey of man's primate background, fossil primates, fossil man, and living races of mankind.

2520 Prehistoric Archaeology (4) Survey of prehistoric culture with specific emphasis on method and theory in archaeology; prehistory of western Europe and Africa; and archaeology in America.

2530 Human Culture (4) Introduction to ethnology: Survey of nature of culture and society and similarities and differences in man's material culture, social, economic, and political organizations, his ideology, art, and language.

3070 Genetics and Society (3) (Same as Botany 3070.)

3410 Principles of Cultural Anthropology (3) Basic concepts and objectives in study of culture. Range of cultural phenomena and approaches to its study. 2530 recommended.

3440 Religion of Primitive Peoples (3) Religions of nonliterate peoples. Place of religion in their social and cultural systems. 2530 recommended. (Same as Religious Studies 3440.)

3450 Community Studies In Complex Culture (3) Review of cross-cultural comparative urban and village communities and methodologies used in community studies. 2530 recommended.

3490 African Religions (4) (Same as Religious Studies 3490) and Black Studies 3490.)

3510 Peoples and Cultures of Mainland Asia (3) Ethnographic survey of indigenous cultures of mainland Asia. Cultural diversity and human ecology in a real perspective. 2530 recommended.

3530 Peoples and Cultures of Africa (3) Ethnographic survey of aboriginal cultures of sub-Saharan Africa. Cultural diversity and human ecology in a real perspective. 2530 recommended.

3540 North American Indians (3) Ethnographic survey of cultures of Arctic, Southwest, Plains and Eastern tribes. Emphasis on cultural differences of peoples occupying these areas during pre-colonial period. 2530 recommended.

3555 Cherokee Ethno History (3) Survey of socio-political aspects of internal affairs and external relationships from first European contact to present. Emphasis on 18th and 19th centuries.

3575 Afro-American Anthropology (3) Anthropological perspectives on Blacks in New World: examination of Afro-Americans via anthropological theories and methodology.

3580 Peoples and Cultures of Mesoamerica (3) Ethnographic survey of aboriginal peoples and post-conquest changes in Indian cultures. Emphasis upon analysis of small rural communities using modern village studies as source material. Recommended prerequisite: 2530.

3610 Archaeology of United States and Canada (3) Survey of prehistoric peoples north of Mexico from initial occupation to European contact. 2530 recommended.

3620 European Prehistory I (3) Cultural developments during Paleolithic, Mesolithic, and Neolithic periods. 2520 recommended.

3630 European Prehistory II (3) Cultural developments during Metal Ages. From close of Neolithic through Iron Age. 2520 recommended. 3620 and 3630 should be taken in sequence.

3640 Ancient Civilization of Mesoamerica (3) Introduction to archaeology of areas of advanced Indian culture in Mexico and Central America beginning with earliest cultures and proceeding to contact with Europeans. 2520 recommended.

3660 Prehistory of Tennessee (3) History of archaeological research in Tennessee and survey of prehistoric American Indian cultures identified through research.

3710 European Folk Culture (3) Traditional aspects of life as expressed in technology, beliefs, art, and folklore, under changing historical and socioeconomic conditions.

3800 Language and Culture (3) Relationship between linguistic categories and patterns of culture. Knowledge of linguistics not required. 2530 recommended.

3811 Introduction to Museology (3) (Same as Art 3811.)

3900 Human Osteology (4) Intensive examination of the human skeleton. Prereq: 2510 or permission of instructor. 3 hrs and 1 lab.

3920 Principles of Physical Anthropology (3) Survey of materials and methods in physical anthropology. 2510 recommended.

3930 The Biology of Races of Man (3) Processes of racial differentiation; criteria of significant differences among existing stocks; influence of biology and culture in race formation; analysis of studies concerning blood groups, race mixture, constitution, growth and nutrition. 2510 recommended.

3950 Human Identification (3) Introduction to techniques in identification of human skeletal material in Forensic Medicine.

4101 Foreign Study (1-16) See page 177.

4102 Off-Campus Study (1-16) See page 177.
4490 Cross-Cultural Survey of Sex Roles and Behavior (3) Examination of sex roles and behavior, from cross-cultural and diachronic viewpoints. Draws disparate and scattered studies together and attempts to arrive at conclusions on questions of sex roles, parameters of acceptable sexual behavior and degrees of tolerance for sexual deviation in various cultures.

4500 Peoples of China I: Chinese Society Before 1839 (3) Anthropological survey of Chinese society and culture during pre-Shang, dynastic, and early Western contact periods. Prereq: 2530 or permission of instructor. Recommended: 3510 or an East Asian course.

4510 Peoples of China II: Chinese Society After 1839 (3) Anthropological survey of Chinese society and culture in the period of intense Western contact, rejection of the West, and development of modern, communist Chinese society and culture. Prereq: 2530 or permission of instructor. Recommended: 4500 or an East Asian course.

4550 Indians of the Southeastern United States (3) Survey of Southeastern Indian cultures; emphasis on aboriginal adjustment to environment; lifeways of Southeastern Amerind groups prior to Euro-American contact. Prereq: 2530, 3440 or permission of instructor.

4560 Cherokee Ethnology (3) Intensive survey of ideology and material aspects of Cherokee culture existing at time of first European contact.

4750 Peoples of Southeast Asia (3) Survey of representative ethnic groups and indigenous cultures of mainland and island Southeast Asia. Problems of contemporary changes. Prereq: 2530, permission of instructor, or an East Asian course.

4580 Asians in the Americas since 1800: Anthropological Perspectives (3) Character, factors, and motivations in Asian immigration to North, Central, and South America. Assimilation pattern and enclave communities are major topics. Major focus is on United States.

4590 Peoples of Japan (3) Analysis of cultural diversity and unity of peoples of Japan. Prereq: 2530 or permission of instructor. Recommended: 3510 or an East Asian course.

4600 Method and Theory in American Archaeology (3) Historical development of New World archaeology with emphasis on theory and field techniques. Prereq: 2550 or permission of instructor.

4610 African Prehistory (3) Survey of cultural history in Africa, south of the Sahara, from earliest evidence of human activity to time of European contact. Prereq: 2550 or permission of instructor.

4640 Zooarchaeology (3) Basic osteological studies of vertebrate classes; emphasis on aboriginal man's utilization of native animals in his subsistence and culture. Identification, analysis, and interpretation of archaeologically derived molluscan and vertebrate remains.

4850 Archaeology of Southeastern United States (3) Intensive study of prehistoric American Indian. Special emphasis on Tennessee prehistory. Prereq: 3610 or permission of instructor.

4740 Southern Appalachian Folk Culture (4) Research-oriented course dealing with wide range of traditional culture in Southern Appalachia: settlement patterns, folk housing, economy, clothing, belief, speech, art, song, dance, and oral traditions and customs. Prereq: permission of instructor. May be repeated for credit.

4870 Cherokee Language (3) Linguistic survey of the structure of the Cherokee language.

4930 Physical Growth and Constitution (3) Comparative growth patterns throughout the life cycle of man, skeletal and dental maturation, the differences in growth; human constitutional types. Prereq: 2510 or permission of instructor. Biology 2110 strongly recommended.

4950 Primate Studies (3) Survey of field and laboratory investigations of comparative anatomy and non-human primate behavior. Prereq: 2510 or permission of instructor.

4960 Primate Paleontology (3) Survey of fossil primate forms; origin and evolution of major primate lineages; emphasizing the earliest Hominids and related forms. Prereq: 2510. Recommended: Zoology 4380.

4970 Human Paleontology (3) Survey of major human fossil forms and interpretation of human phylogeny. Emphasis on Pleistocene and more recent Hominid forms and factors which shaped them into modern man. Prereq: 2510. Recommended: 4960 and Zoology 4380.

GRADUATE

The general requirements for the Master's and Doctor's degree are given in the Graduate Catalog.

5000 Thesis

5010 Graduate Research (1-9)

5100 Seminar in Cultural Anthropology (3, 3, 3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5140 Seminar in Zooarchaeology (3)

5149 Laboratory Studies of the Vertebrate Skeleton (4)

5159 Laboratory Study of the Mollusca (4)

5160 Seminar in Archaeology (3-9)

5210 Community Anthropology: The Local Community (3)

5340 Fieldwork in Archaeology (3-9)

5400 History of Anthropological Theory (3)

5440 Peasant Societies (3)

5340 Comparative Social Organization (3)

5400 Quantitative Methods in Anthropology (3)

5470 The Healer in Cross-Cultural Perspective (3)

5510 Seminar in Ethnology of Western North America (3)

5600 Theory in Archaeology (3)

5610 Problems in North American Archaeology (3)

5620 Problems in Old World Archaeology (3)

5630 The Maya (3)

5640 Archaeological Resource Management (3)

5660 Seminar in Prehistoric Lithic Technology (3)

5670 Seminar on Aboriginal Lithic Resources (3)

5700 Theory in Folk Culture Studies (3)

5710 Problems in Folk Culture Studies (3)

5900 Dental Anthropology (3)

5910 Measurement of Man (3)

5920 Advanced Physical Anthropology (3)

5930 The Human Skeleton in Forensic Medicine (3)

5940 Skeletal Biology of Early Human Population (3)

5950 Comparative Primate Anatomy (4)

5960 Paleopathology (4)

5960 Dermatoglyphics (3)

5970 Emergence and Early Evolution of Man (3)
For information regarding the Bachelor of Fine Arts degree, see page 172.

1115-22-35 Studio Fundamentals (4, 4, 4) 1115—Drawing in perspective for illusion of space; 1125—Surface composition and color; 1135—Real space and volume. For art, architecture, related arts and art education majors. Others with permission of instructor only.


2008 Honors: Art (4) Intensified study for the exceptional student. May be repeated for a maximum of 24 credit hrs.

2105 Introduction to Drawing (4) Prereq: 1115.

2115 Drawing II (4) Prereq: 2105. May be repeated for a maximum of 8 credit hrs.

2116 Intermediate Design (4, 4) 2116—Motion picture as primary tool of research; 2117—Color theory and application. Prereq: for 2117: 1115-25-35.

2205 Introduction to Painting (4) Oil, acrylic and watercolor. Prereq: 1115-25-35 for art majors.

2215 Painting II (4) Oil and acrylic. Prereq: 2205. May be repeated for a maximum of 8 credit hrs.

2315 Watercolor II (4) Prereq: 2205. May be repeated for a maximum of 8 credit hrs.

2405 Introduction to Sculpture (4) Prereq: 1115-25-35 for art majors.

2415 Sculpture II (4) Prereq: 2405. May be repeated for a maximum of 8 credit hrs.


2515-25 Graphic Design (4, 4) 2515—Lettering and layout; 2525—Production. Prereq: 2505 for 2515; 2525 for 2525.

2516 Advertising Design (4) Fundamentals of lettering and layout for newspaper, magazine television, outdoor advertising. Non-art majors only.

2545-55-65 Photo-Graphics (4, 4, 4) 4 Introduction to art of photography.

2605 Introduction to Printmaking (4) Relief, lithography, intaglio, and screen printing. Prereq: 1115-25-35 for art majors.

2615 Intaglio II (4) May be repeated for a maximum of 8 credit hrs.

2625 Lithography II (4) May be repeated for a maximum of 8 credit hrs.

2626 Screen Printing II (4) May be repeated for a maximum of 8 credit hrs.

2715 Survey of Contemporary Art (4) 1945 to present.

2725 Black Art (4) Black artists in society. Emphasis on contemporary art forms.

3008 Honors: Intermediate Art (4) Intensified study for the exceptional student. May be repeated for a maximum of 24 credit hours.

3115 Drawing III (4) May be repeated for a maximum of 12 hours. Prereq: 2115.


3215 Painting III (4) May be repeated for a maximum of 12 hours. Prereq: permission of instructor.

3315 Watercolor III (4) May be repeated for a maximum of 12 credit hrs. Prereq: permission of instructor.

3415 Sculpture III (4) May be repeated for a maximum of 12 hours.

3515 Visual Communications I (4) Graphic design, theory and techniques of problem solving for printed material. Prereq: 2525.

3516 Typography (4) Theories and techniques of typography and printing as a fine art medium. May be repeated for a maximum of 12 hours.

3517 Airbrush (4) Techniques and creative applications. May be repeated once for credit.

3525 Visual Communications II (4) Advanced pictorial perception, concepts, methods, and techniques for designer. Prereq: 2525.


3615 Intaglio III (4) May be repeated for a maximum of 12 hours.

3616 Lithography III (4) May be repeated for a maximum of 12 hours.

3617 Advanced Screen Printing (4) May be repeated for a maximum of 12 hours.


3705 Northern European Painting: 1350-1600 (4) Painting and printmaking of the low countries, France, Germany, and England, includes international style manuscripts, Van Eyck, Bosch, Durer, Holbein, and Bruegel.

3715 Early Italian Renaissance Art: 1300-1500 (4) Painting, sculpture, and architecture. Includes Giotto, Masaccio, Donatello, Brunelleschi, Alberti, Botticelli, and Leonardo.


3726 Art of Northern Europe in Seventeenth and Eighteenth Centuries (4) Emphasis on Rembrandt, Vermeer, Hals, Rubens, Poussin, Callot, Georges de La Tour, Watteau, David, urban development of Paris and London, and pilgrimage churches of Southern Germany.

3735 History of Nineteenth-Century Painting in Europe and America (4) Emphasis on France Neo-Classicism, Romanticism, Friedrich, Constable, Turner, Corot and Barbizon landscape, Hudson River Group, Pre-Raphaelite Brotherhood, Manet, Courbet, Impressionism, Eakins, Homer, Seurat through Cezanne.

3736 History of Twentieth-Century Painting in Europe and America (4) Fauvism, Die Brücke, Cubism, Der Blaue Reiter, Futurism, Dada and Surrealism, geometric abstraction, social commentary, Abstract Expressionism in the U.S.A. and parallels in Europe, Pop, Op, Minimal, and Concept Art.


3746 History of Modern Sculpture in Europe and America (4) From 1800 to 1900: Neo-Classicism to Rodin. From 1900 to present: emphasis on Cubism, Constructivism, Expressionism, Assemblage, Pop, Primary Forms, Environments, and Earthwork.

3755-56-57 Studies in Art History (4, 4, 4) Concentration in selected areas. Prereq: 12 hours of art history or permission of instructor.
5002 Non Thesis Graduation Completion (3)
5011-21-31 Exhibition in Lieu of Thesis (3, 3, 3)
5101 Foreign Study (1-12)
5102 Off-Campus Study (1-12)
5103 Independent Study (1-12)
5110-20-30-40-50-60 Drawing and Composition (3, 3, 3, 3, 3, 3)
5210-20-30-40-50-60 Oil Painting (3, 3, 3, 3, 3, 3, 3)
5310-20-30 Watercolor Painting (3, 3, 3, 3, 3, 3)
5340-50-60 Watercolor (3, 3, 3, 3)
5410-20-30-40-50-60 Sculpture (3, 3, 3, 3, 3, 3, 3)
5510-20-30-40-50-60 Communication Design (3, 3, 3, 3, 3, 3)
5610-20-30 Intaglio (3, 3, 3)
5611-21-31 Lithography (3, 3, 3)
5612-22-32 Screen Printing (3, 3, 3)
5770 Seminar in Art History (3)
5855-56-57 Reading and Research in Art History (2, 2, 2)
5900 Seminar in Art Criticism (3)

Asian Studies
See Cultural Studies.

Astronomy
See Physics and Astronomy.

Audiology and Speech Pathology (160)

Professors: H. L. Luper (Head), Ph.D. Ohio State; S. Adler, Ph.D. Ohio State; C.W. Asp, Ph.D. Ohio State; D.M. Lipecomb, Ph.D. Washington; H.A. Peterson, Ph.D. Illinois; B. Silverstein, Ph.D. Purdue.

Associate Professors: S.B. Bunche, Ph.D. Michigan State; P.J. Carmy, Ph.D. Iowa; C.G. Maisel, M.Ed. Texas; I.V. Nabelek, Ph.D. Czech Technical, Prague.

Assistant Professors: T.O. Davidson, M.A. Tennessee; C.J. Ferrell, M.A. Tennessee.


UNDERGRADUATE

General Information. One of mankind's most significant developments has been the acquisition of organized systems of communication. Basic to most human languages systems has been dyadic oral-aural communication. The Department of Audiology and Speech Pathology offers course work in the scientific study or oral-aural communication with special attention to variations considered normal or different. Many of the courses offered in the department cover information that should be valuable to students planning to enter any social service discipline. Suggested electives for non-departmental majors include: 3010, 3040, 3050, 3070, 3710, 4720, and 4750.

Majors. The two majors (audiology and speech pathology) within the department are preprofessional; that is, they are preparatory to graduate work and to professional certification in some aspect of communicative disorders. The Master's degree is required for most professional certificates and employment positions. Within the broad coverage of audiology, it is possible for a student to specialize to a limited extent by choosing elective courses which emphasize traditional diagnostic audiology or aural habilitation-rehabilitation. Students in speech pathology may specialize to a limited extent by choosing elective courses which emphasize speech disorders, language disorders, or cultural language differences. Students desiring school certification in speech and hearing or education of the deaf should consult the Department of Special Education and Rehabilitation for specific requirements. A major in audiology consists of Audiology and Speech Pathology 3010, 3050, 3200, 3310, 3710, 4040, 4450, 4720, 4930 plus not less than 10 or more than 22 credit hours from the following: 3065, 4230, 4460, 4470 and 4940.

Additional recommended courses for audiology majors are Audiology and Speech Pathology 4560, 4610, 4750 and Psychology 2500, 2540 and 3150. A major in speech pathology consists of Audiology and Speech Pathology 3010, 3050, 3065, 3200, 3310, 4040, 4320, 4330, 4650, 4720, plus not less than 8 or more than 15 credit hours from the following: 3070, 4310, 4340, 4450, 4470, 4610, 4930, 4940. Additional recommended courses for speech pathology majors are: Audiology and Speech Pathology 4520, 4450, 4460, 4470, 4750, Anthropology 2530 or 3410, Psychology 2500, 2520, 2540, 3150, Special Education 4030, 4341, 4342, 4110, 4120, 4130, 4610, and Child and Family Studies 4810.

1281 English Pronunciation for Foreign Students (3) (Same as English 1281.)

3010 Basic Acoustics in Speech and Hearing (4) Fundamental aspects of acoustics in speech and hearing including physics of sound.

3040 Introduction to Speech Pathology and Audiology (3) Nature, etiology, and incidence of speech, hearing, and language disorders. Cannot be used to satisfy requirements of major in audiology or speech pathology.

3050 Speech Science I: Phonetics (4) Basic phonetics including recognition and production of spoken English sounds with analysis of their formation; acoustic characteristics of speech and speech perception. Prereq: 3010.

3065 Speech Science II (4) Anatomy and physiology of speech production mechanism. Prereq: 3050.

3070 Psychology of Speech (3) Psychological factors in speech and language behavior.

3200 Speech and Language Development (4) Speech and language development in the normal child including development of distinctive features and implications of this process on diagnosis of speech and language development. Prereq: Psychology 3560 or Education 2430.

3310 Articulation Disorders (4) Etiology, diagnosis, and treatment of articulatory defects. Prereq: 3050. (Same as Special Education 3310.)

3710 Audiology (4) Fundamental aspects of normal hearing including anatomy and physiology of ear and basic audiometric procedures. Prereq: 3010. (Same as Special Education 3710.)
4560 Problems in Audiology (1-6) May be repeated to maximum of 6 hrs credit. Prereq: Permission of instructor.


4650 Speech and Language of the Culturally Different Child (3) Discussion of speech and language differences of children of various minority groups, of different ethnic and class membership and from different geographic regions; their causes, and their effects upon educational programs.

4700 Audiology for Educators of the Deaf (4) Fundamental aspects of hearing, including physics of sound, anatomy and physiology of the ear, etiology and rehabilitation of hearing loss and basic audiometric techniques. May not be used to satisfy requirements of major in audiology and speech pathology. (Same as Special Education 4700.)

4719 Audiology Laboratory (1) Prereq: Permission of instructor. Undergraduate credit only. (Same as Special Education 4719.)

4720 Audiology II (4) Etiology and rehabilitation of hearing loss including pediatric and geriatric aspects, medical treatment and diagnostic audiology. Prereq: 3710. (Same as Special Education 4720.)

4750 Noise in the Environment (3) Discussion of extent to which noise problem exists, introduction to methods of noise measurement, basic techniques of sound and vibration abatement, acoustical factors, and physiological concomitants in noise stimulation. Knowledge of acoustics is advisable.

4930 Aural Rehabilitation: Speechreading and Auditory Training (4) Speechreading as a receptive language process and development of maximum use of residual hearing in acoustically handicapped. (Same as Special Education 4930.)

4939 Laboratory in Aural Rehabilitation (1) (Same as Special Education 4939.)

4940 Advanced Aural Rehabilitation (4) Prereq: 4930 or permission of instructor. (Same as Special Education 4940.)

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5040 Advanced Clinical Practice in Audiology (1-6)

5050 Practicum in Aural Habilitation (1-6)

5051 Practicum in Aural Rehabilitation (1-6)

5060 Anatomy and Physiology of Speech (3)

5070 Anatomy and Physiology of Hearing (3)

5071 Physiological Acoustics (3)

5100 Comparative Anatomy of Peripheral Auditory Structures (3)

5110 Introduction to Research in Speech and Hearing (3)

5119 Instrumentation in Speech and Hearing Science (3)

5200 Seminar on Stuttering (3)

5201 Aphasia (3)

5320-30-40 Advanced Clinical Practice in Speech Disorders (1-6, 1-6, 1-6)

5350-60-70 Advanced Clinical Practice in Speech Diagnosis (1-6, 1-6, 1-6)

5380 Cerebral Palsy (3)

5390 Cleft Palate (3)

5440 Hearing Aid Evaluation (3)

5450 Sound Measurement and Analysis in Hearing Conservation (3)

5460 Differential Diagnosis of Auditory Disorders (3)

5470 Impedance Measurement in Audiology (3)

5500 Seminar in Audiology (3)

5503 Seminar in Advanced Audiological Procedures (3)

5520 Seminar in Speech Pathology (3)

5540 Seminar in Language Pathology (3)

5550 Special Problems in Speech Pathology (1-3)

5560 Independent Study in Speech Pathology (1-3)

5560 Independent Study in Audiology (1-6)

5610 Practicum: Language Pathology in Children (3)

5651 Seminar in Language Differences (3)

5700 Seminar in Psycholinguistic Concepts in Speech Pathology (3)

5950 The Verbo-tonal System (3)

6000 Doctoral Research and Dissertation

6010 Experimental Phonetics (3)

6020 Psychoacoustics (3)

6060 Applied Anatomy and Physiology of Speech Mechanism (3)

6070 Experimental Techniques in Cochlear Physiology and Neurophysiology (3)

6080 Seminar in Speech Science (3)

6090 Seminar in Hearing Science (3)

6110 Experimental Design in Speech and Hearing (3)

6117 Theories of Hearing (3)

6500 Advanced Seminar in Audiology (3)

6520 Advanced Seminar in Speech and Language (3)

6560 Directed Research (1-6)

6570 Directed Study in Speech Pathology (1-3)

6580 Directed Study in Audiology (1-3)

6590 Directed Study in Speech Science (1-3)

6600 Directed Study in Hearing Science (1-3)

Bacteriology

See Microbiology.

Biochemistry (188)

Professors: J.W. Greenwalt (Head), Ph.D. Purdue; J.E. Churchich, Ph.D. Sheffield (England); K.J. Monty, Ph.D. Rochester; T.P. Salo, Ph.D. Michigan

Associate Professor: J.G. Joshi, Ph.D. Poona (India).

Assistant Professors: R.H. Feinberg, Ph.D. California (Berkeley); S.W. Hawkins, Ph.D. Chicago; L. Huang, Ph.D. Michigan State.

UNDERGRADUATE

No major is offered, although course work in biochemistry is applicable to majors in biology, and chemistry.

For the Bachelor of Arts Degree with a minor in biochemistry, the following courses are required: Chemistry 2140-49, 3211-21-31.
610 Functions of the Trace Elements (1)
6210 Structure and Function of Macromolecules (1)
6220 Biochemical Genetics (1)
6230 Metabolic Regulation (1)
6310 Biological Energy Transformations (1)
6320 Antigen-Antibody Interactions (1)
6330 Biochemistry of Specialized Physiological Processes (1)
6410-20-30 Current Topics in Biochemistry (2, 2.2)

Biology (190)
Coordinator: K.J. Monty

A major in biology may be met by completing one of the two following concentrations:

A. Concentration in Cell Biology. Consists of Biology 3110-20-30, Chemistry 3211-21-31, 3219-29-39, Biochemistry 4110-20, and 12 hours from the approved upper division courses in biochemistry, botany, microbiology, and zoology. Prerequisites to this concentration are: Biology 1210-20-30 or Botany 1110-20 or 1118-28 or Zoology 1118-28; Chemistry 1110-20-30. Corequisites are: Math 1840-50; a year sequence in physics (except 1410-20-30); and Chemistry 2140-49.

B. Concentration in Organismal and Systems Biology. Consists of Biology 3110, 3120, 3130, Chemistry 3211-21-31, 3219-29-39, and 18 hours from approved upper division courses in biochemistry, botany, microbiology, and zoology. Prerequisites to this concentration are: Biology 1210-20-30 or Botany 1110-20 or 1118-28 or Zoology 1118-28, Chemistry 1110-20-30. Corequisites are: Math 1840-50 or 1550-60 (Math 1840-50 is recommended choice); a year sequence in physics (except 1410-20-30) or Geology 1510-20.

Note: Students majoring in biology are advised to exercise care in fulfilling the science and mathematics trial requirements. Math 1840-50 (or in some cases 1550-60) and Chemistry 1110-20-30 or equivalent (20 hours altogether) must be completed by biology majors. Students majoring in biology are advised to consider completion of a physical science minor (page 211.)

Minor: Consists of Biology 3110-20-30 and 12 hours of upper division courses chosen from the list below. Biochemistry 4110-20, 4119, 5010; Botany, any 3000- or 4000-level courses; Microbiology, any 3000- or 4000-level courses; Microbiology, any 3000- or 4000-level courses; Zoology, any 3000- or 4000-level courses except 3010-20-30. (In meeting the upper division minimum requirement, not more than 10 hours may be credited from any one biological science department, and not more than 4 hours of research courses may be credited.) Prerequisites to the minor are: Introductory Biology courses (Biology 1210-20-30 or Botany 1110-20 or 1118-28 or Zoology 1118-28); Chemistry 1110-20-30.

Note: Certain upper division courses require organic chemistry or other prerequisites—consult the catalog description in each case.

1210-20-30 General Biology (4, 4, 4) 1210-Biology of cells: chemical basis of life, cell structure and function, energy metabolism, cell division, DNA, RNA, and protein synthesis. Monera, Protista, and Fungi. 1220-Biology of plants and animals: survey of plant kingdom, structure and function of plant tissues, plant growth and reproduction, survey of the animal kingdom, reproduction and development in animals, animal tissue and organ systems. 1230-Genetics, evolution, populations and ecology. May be taken in any sequence. Students who receive credit for 1210-20-30 may not also receive credit for Botany 1110-20, 1118-28 or Zoology 1118-28.

3110 General Genetics (4) Classical and modern principles of heredity. Prereq: 1210-20-30 or Botany 1110-20 or the equivalent of two years of high school biology and satisfactory ACT scores; Chemistry 1110-20-30. 3 hrs and 1 additional class meeting. May be taken in any sequence or combination with 3120 and 3130.

3120 Cell Biology (4) Organization and function of the cell. Prereq: Same as 3110. 3 hrs and 1 additional class meeting. May be taken in any sequence or combination with 3110 and 3130.

3130 General Ecology (4) Relations between organisms and their environment; including human environmental problems. 3 hrs and 1 additional class meeting. Prereq: Same as 3110. May be taken in any sequence or combination with 3110 and 3120.

Black Studies
See Cultural Studies.

Botany (198)

Professors: R.W. Holton (Head), Ph.D. Michigan; E.E.C. Clebsch, Ph.D. Duke; H.R. DeSelm, Ph.D. Ohio State; W.R. Herndon (Vice Chancellor for Academic Affairs), Ph.D. Vanderbilt; L.R. Hasler (Emeritus), Ph.D.

3050 Socio-Economic Impact of Plants (3) Significance of plants in origin and development of human cultures, evolution of cultivated plants, and role of plants in present civilizations. Occasional field trips. Not for botany graduate credit.

3070 Genetics and Society (3) An introduction to genetics, morphology and evolution with emphasis on their implications for human society. Not for botany graduate credit. (Same as Anthropology 3070.)

3090 Biology and Human Affairs (3) Basic biological principles involved in deterioration and preservation of an environment in which man and his cultures may survive. Not for botany graduate credit. (Same as Zoology 3090.)

3130 Introductory Plant Pathology (4) Same as Agricultural Science 3130. 3210 Introductory Plant Physiology (4) Organismal physiology of plants; water relations, mineral nutrition, morphogenesis, elements of metabolic processes, effects of age, light, natural rhythms, temperature and other environmental factors. Lecture and lab. Not for botany graduate credit. Prereq: One year general chemistry and one year of a biological science.

4000 Tutorial in Botany (2) Individual, independent study under guidance of selected staff. By application only. May be repeated with permission of Department.

4030 Mechanisms of Plant Speciation (4) Processes of plant speciation emphasizing population genetics, isolation, drift, hybridization, variation in populations, establishment of population barriers and other aspects of plant speciation. Prereq: 3030-20 and Biology 3110.


4240 Paleobotany (4) Same as Geology 4240.

4310 Plant Ecology (4) Interactions between individuals, species communities and their environments. Circulation of energy and matter in ecosystems. Weekly field trips or laboratory periods, and at least two weekend field trips. Prereq: 3030 or equivalent.

4410-20-30 Undergraduate Research Participation (2, 2, 2) Experience in active research projects under supervision of staff members. Prereq: Junior or senior standing, minimum grade average 3.0, permission of instructor.

4710-20-30 Senior Seminar (1, 1, 1) At least 2 hours of 4710-20-30 are required of botany majors. Prereq: Senior standing.

GRADUATE

5000 Thesis

5011 Mycology (4)

5012 Morphology and Evolution of Phycocystes (4)

5017 Field Mycology (4)

5021 Bryology (4)

5022 Lichenology (4)

5031 Vascular Plant Taxonomy (4)

5061 Phycology (4)

5070 Principles of Biological Illustration (3)

5080 Pteridology (4)

5090 Morphology and Evolution of Basidiocymes (4)

5120 Agrostology (4)

5150 Advanced Morphology of Flowering Plants (4)

5160 Biosystematics (4)

5210 Advanced Plant Physiology I (3)

5220 Advanced Plant Physiology II (3)

5290 Quaternary Problems (4)

5310-20-30 Special Problems in Botany (1-6, 1-6, 1-6)

5340 Plant Geography (4)

5350 Analysis of Plant Communities (4)

5410-20-30 Seminar in Teaching of College Botany (1, 1, 1)

5510-20-30 Systems Ecology (3, 3, 3)

5780 Plant Cytology (4)

5810 Cytogenetics (4)

5820-21-22-23-24 Methods and Instrumentation in Laboratory Investigations (1, 1, 1, 1, 1)

5830 Field Methods in Plant Ecology (4)

5840 Microbes in Ecosystems (3)

5850-51-52-53-54 Methods and Instrumentation in Field Investigations (1, 1, 1, 1, 1)

5870 Advanced Plant Genetics (4)

5910-20 Developmental Plant Morphology (3, 1)

6000 Doctoral Research and Dissertation

6010 Advanced Topics in Morphology of Vascular Plants (2-4)

6060 Advanced Topics in Cryptogamic Botany (2-4)

6210 Photobiology (3)

6310 Advanced Topics in Cytology and Cell Biology (3-3)

6320 Ecosystems of the World (3)

6420 Advanced Topics in Genetics (2-4)

6620 Seminar in History of Botany (2)

6630-40 Radiation Ecology (2, 2)

6820 Advanced Topics in Plant Physiology (2-4)

6830 Advanced Topics in Ecology (2-4)

6930 Advanced Topics in Systematic Botany (2-4)

Chemistry (235)

Professors:

D.A. Shirley (Head), Ph.D. Iowa State; N.S. Bowman, Ph.D. Princeton; C.A. Eubler (Emeritus), Ph.D. Ohio State; W.E. Bull, Ph.D. Illinois; C.J. Collins, Ph.D. Northwestern; J.A. Dean, Ph.D. Michigan; J.F. Eastham, Ph.D. California (Berkeley); W.H. Fletcher, Ph.D. Minnesota; C.W. Keenan (Associate Dean), Ph.D. Texas; D.C. Kleinfeilter, Ph.D. Princeton; M.H. Littke, Ph.D. Wisconsin; G. Marnantov, Ph.D. Louisiana State; A.D. Melven (Emeritus), Ph.D. Penn State; G.D. O'Keiley, Ph.D. California (Berkeley); G.K. Schweitzer, Ph.D. Illinois; G.P. Smith, Ph.D. Virginia; H.A. Smith (Emeritus), Ph.D. Harvard; W.T. Smith (Emeritus), Ph.D. Ohio State; W.A. Van Hook, Ph.D. Johns Hopkins; T.F. Williams I, Ph.D. London (England); J.H. Wood (Emeritus), Ph.D. North Carolina.

*Students with 2 years of high school biology and satisfactory ACT scores may, with the permission of the department, omit the freshman year sequence and enter Biology 3110-20-30 directly (see course listings under biology).

*Alumni Distinguished Service Professor.
The two alternative routes for the student to take in designing a program for a B.A. degree with a major in chemistry.

Concentration A is defined to prepare the student for a career as a professional chemist or for entrance into graduate school in such fields as chemistry, biochemistry, or geochimistry. This program has similarities to that leading to the degree of Bachelor of Science, Chemistry, (page 175), but with more opportunity for selection of electives outside the department and outside of science. Unlike the Bachelor of Science in Chemistry degree, the B.A. degree using Concentration A is not approved by the Committee on Professional Training of the American Chemical Society.

The prerequisites consist of Chemistry 1110-20, Mathematics 1840-50-60, 2840-50, Physics 2510, 2310-20. The concentration consists of Chemistry 2140, 2149, 3211-21 or 3511-21 (latter recommended), 3219-29 or 3219, 3529-39 (latter recommended), 3410-20-30, 3429 plus at least 10 hours of additional upper division work in chemistry. (Up to six hours of Biochemistry 4000-level and above or Geology 4610 may be applied to the ten-hour requirement.) While not required, Math 2860 is highly recommended as an elective for majors in this concentration.

Concentration B is designed for students who have career objectives in fields other than chemistry, but in fields where chemistry has direct application, such as medicine, dentistry, pharmacy, law, business and ecology. This concentration, supplemented by appropriate courses from other areas, is suitable for students planning careers in these areas. Concentration B is specifically designed to provide more elective hours which may be employed in fields which are related to chemistry. Concentration B is not appropriate for students intending to become professional chemists.

The prerequisites consist of Chemistry 1110-20-30, Mathematics 1540-50-60 or 1840-50-60 and any of the following natural science options: (a) Physics 2210-20-30 or 2510, 2310-20; (b) Geology 1510-20; (c) Biology 1200-20-30; (d) Biology 3110-20 and Microbiology 3000, 3008; (e) Botany 1110-20. The concentration consists of Chemistry 2140, 2149, 3211-21 or 3511-21 (latter recommended), 3219-29 or 3219, 3529-39 (latter recommended), 4910-20-30, 4929 plus at least 10 hours of additional upper division work in chemistry. (Up to six hours of Biochemistry 4000-level and above or Geology 4610 may be applied to the ten-hour requirement.)
need for operating knowledge of various spectroscopic and chromatographic techniques. Coreqreq. 3521-31 or 3221-31) is a corequisite for students not having credit for the lecture.

3810 Radioactivity and its Applications (3)
Radioactive materials in tracer and therapeutic applications. Radiactive decay, detection apparatus and techniques, tracer procedures and safety precautions in agriculture, biology, medicine, nutrition, etc. Not for credit by chemistry or physics majors or minors. Preqreq. Math 1550 or equivalent. 1 yr of General Chemistry.

4110 Physical Chemistry (3)

4119 Physical Chemistry Laboratory (1)
Solutions, phase equilibrium, reaction kinetics and spectroscopy. The corresponding course 4110 is corequisite.

4160-70 Intermediate Physical Chemistry (3, 3)
(Designed for entering graduate students who have had one year of physical chemistry.) 4160—The three laws of thermodynamics, phase equilibrium and solutions, and chemical equilibria. 4170—Gases and kinetic theory, chemical kinetics, molecular spectroscopy, and introduction to chemical statistics.

4210 Advanced Analytical Chemistry (3)
Chemical separations including chromatography, ion exchange and solvent extraction; spectrophotometric techniques. Preqreq. 3410-48.

4219 Advanced Analytical Chemistry Laboratory (1)
Experiments on topics discussed in 4210. Coreq. 4220.

4220 Advanced Analytical Chemistry (3)
Electroanalytical methods of analysis (including Potentiometry, coulometry, polarography, and voltammetry); magnetic resonance methods; mass spectrometry; x-ray absorption and fluorescence techniques. Preqreq. 3410-48, 3420 or 4920 recommended.

4229 Advanced Analytical Chemistry Laboratory (1)
Experiments on topics discussed in 4220. Coreq. 4220.

4420 Physical Inorganic Chemistry (3)
Theoretical concepts leading to understanding of inorganic chemistry; quantum theory of the atom, principles of molecular structure, and elementary nuclear chemistry. Preqreq. 3410-20-39, 4110.

4430 Intermediate Inorganic Chemistry (3)
Application of theoretical concepts to inorganic elements, their chemical states, and their reactions. Preqreq. 4420.

4510 Organic Qualitative Analysis (3)
Identification of organic compounds and mixtures. Preqreq. 3211-21-31, 3219-29-39 or 3219, 3529-39. 3 labs. (Not open to students who have completed 4610.)

4550 Organic Reaction Mechanisms (3)

4610-20 Advanced Chemical Experimentation (2, 2)
Laboratory course in application of modern experimental techniques to solution of chemical problems. Synthesis and characterization of organic and inorganic compounds, with emphasis on independent study using advanced techniques. Preqreq. 3231-39 or 3231-3539, 3430-39, 4220. Students who receive credit for 4610 may not also receive credit for 4510.

4640 Electronics for Chemists (4)
Electronics in design and construction of chemical instrumentation. 2 hrs and 2 labs. Preqreq. Physics 2310.

4710-20-30 Research in Chemistry (2, 2, 2)
Open to senior majors with permission of department head. Written report must be submitted to research director at termination of project.

4910-20-30 Biophysical Chemistry (3, 3, 3)
Physicochemical principles with applications to biological systems. Must be taken in sequence. Not open to students having 3410-20-30. 4910—Gas laws; first, second and third laws of thermodynamics; equilibrium; 4920—Solution chemistry; electrochemistry; kinetics; nuclear chemistry; 4930—Elementary quantum chemistry; optical and magnetic spectroscopy; light scattering; macromolecular properties. Preqreq. 1110-20-30; Math 1540-50 or equivalent.

4929-39 Biophysical Chemistry Laboratory (1, 1)
Experiments on topics discussed in 4910-20-30. Must be taken in sequence. Not open to students taking 3410-20-30-39 sequence. 4920 is coreq or preqreq for 4929. 4930 is coreq or preqreq for 4939. 1 lab.

GRADUATE

Students majoring in chemistry for the M.S. or Ph.D. degree are required to present a prerequisite one year each of general, analytical, organic, and physical chemistry with a satisfactory record. Students lacking any of these prerequisites may be admitted with appropriate deficiencies which must be removed without graduate credit.

For students minoring in chemistry, the prerequisite is two years of chemistry including quantitative analysis.

The Master's Program

Master's degree requirements are found in the Graduate School Catalog.

The Doctoral Program

Doctor's degree requirements are found in the Graduate School Catalog. The department offers specialization in eight areas for the Ph.D. degree: analytical, environmental, inorganic, organic, physical, theoretical, chemical physics and polymer science.

5000 Thesis

5110-20-30-35 Advanced Organic Chemistry (3, 3, 3, 3)
5129 Advanced Organic Chemistry Laboratory (3)
5140 Introductory Polymer Chemistry (3)
5150 Kinetics of Polymerization (3)
5160 Organic Chemistry of Polymers (3)
5170 Physical Chemistry of Polymers (3)
5240 Electronics for Chemists (4)
5250-60-70 Advanced Analytical Chemistry (3, 3, 3)
5259-60-79 Advanced Analytical Chemistry Laboratory (1, 1, 1)
5280-90 Clinical Chemistry (3, 2)
5299 Clinical Chemistry Laboratory (1)
5310-20-30 Research in Chemistry (3, 3, 3)
5340-50 Quantum Chemistry (3, 3)
5410-20-30 Advanced Physical Chemistry (3, 3, 3)
5440 Experimental Methods of Infrared and Raman Spectroscopy (3)
5450 Statistical Thermodynamics (3)
5460 Radiation Chemistry (3)
5511 Survey of Inorganic Chemistry (3)
5521 Survey of Analytical Chemistry (3)
5531 Survey of Organic Chemistry (3)
5710-20-30 Theoretical Inorganic Chemistry, (3, 3, 3)
5810 Nuclear Chemistry (3)

5911-21-31 Chemistry Seminar (1, 1, 1)
6000 Doctoral Research and Dissertation
6111 Selected Topics in Organic Chemistry (3)
6130 Natural Product Chemistry (3)
6150 Theoretical Organic Chemistry (3)
6160 Physical Organic Chemistry (3)
6165 Orbital Symmetry Control (3)
6175 Organic Photochemistry (3)
6190 Organometallic Chemistry (3)
6210 Advanced Analytical Spectroscopy (3)
6211 Selected Topics in Analytical Chemistry (3)
6311 Selected Topics in Polymer Chemistry (3)
6320 Natural Polymers (3)
6411 Selected Topics in Physical and Theoretical Chemistry (3)
6420 Nuclear Magnetic Resonance (3)
6430 Photochemistry and Radiation Chemistry (3)
6450 Electrochemistry (3)
6475 Electronic Structure of Radicals (3)
6480 Statistical Thermodynamics (3)
6495 Advanced Chemical Kinetics (3)
6510 Thermodynamics of Solutions (3)
6520 Magnetic Resonance (3)
6711 Selected Topics in Inorganic Chemistry (3)
6730 Topics in Quantum Chemistry (3)
6750 Molten Salt Chemistry (3)
6810 Vibrational Problems in Molecular Spectra (3)
6820 Molecular Vibration-Rotation Theory (3)
6811 Selected Topics in Nuclear Chemistry (3)

Chinese

See Cultural Studies (Asian Studies).

Classics (257)

Professors:
H.C. Rulledge (Head), Ph.D. Ohio State;
N.K. Rapp (Emeritus), Ph.D. Illinois.

Associate Professors:
M.L. Henbest, M.A. Arkansas; J.E. Shelton, Ph.D. Vander.)

Assistant Professors:
G.C. Gesell, Ph.D. North Carolina (Chapel Hill); B.J. Levy, Ph.D. Texas; P.J. Nassen, Ph.D. Ohio State.

Greek and Roman Civilization

See Cultural Studies.

Greek

UNDERGRADUATE

A major in Greek consists of 39 hours of language courses numbered above 2000 but including Classics 4220. Nine hours from the following general courses may be substituted for language courses at the discretion of the department: Classics 3210-20, 3310-20, 4010. 4101 may be taken for a maximum of 6 hours. The Greek minor consists of 24 hours in
Certification for Teaching Latin in Tennessee. Consult Certification Clerk, Room 212, Claxton Education Building.

1510-20 Beginning Latin (4, 4) Must be taken in sequence.

2511-21 Intermediate Latin (4, 4) 2511—Readings from the age of Cicero. 2521—Virgil's Aeneid, Open to those who have had at least two years of high school Latin, or equivalent.

3140 Ovid (3) Prereq: 3 or 4 years of high school Latin or 2521.

3150 Plautus and Terence (3) Prereq: 3 or 4 years of high school Latin or 2521.

3160 Catullus (2) Prereq: 3 or 4 years of high school Latin or 2521.

3440 Livy (3)

3450 Pliny and Martial (3)

3460 Eliogac Poets (3)

4120 Horace, Satires and Epistles (3)

4140 Cicero and Techniques of Latin Prose Composition (4) Recommended for Latin majors and minors, especially those intending to teach or pursue graduate work. Works of Cicero studied as models for prose composition.

4310 Selected Readings from Latin Literature (3)

4320-30 Selected Readings from Latin Literature (3, 3) May be repeated for credit.

4340 Horace, Odes (3)

4350 Tacitus (3)

4360 Lucullus (3)

4370 Readings in Medieval Latin (3)

GRADUATE

5000 Thesis

5310 Seminar in Caesar (3)

5510-20-30 The Latin Epic. Lucrètius, Virgil, Lucan (3, 3, 3)

5510-20-30 Roman Comedy. Plautus, Terence (3, 3, 3)

GENERAL COURSES

2710 Greek Etyymology (4) Origin and derivation of words. Greek scholars most commonly found in English language with special attention to words in scientific and technical vocabularies.

2720 Latin Etyymology (4) Origin and derivation of words. Latin stems most commonly found in English language with special attention to words in scientific and technical vocabularies.

2810 Greek Life (4) Manners and customs, social and economic aspects of classical civilization; family, politics, laws, finance, commerce.

2820 Roman Life (4) Description same as for Greek Life 2420.

2910-20 Survey of Greek Literature in English Translation (4, 4) 2910— Homer, lyric poetry, Herodotus. 2920—Thucydides, Plato, literature of the age of Alexander.

3210 Early Greek Mythology (3) Comprehensive study of Greek myths through readings, lectures, and discussion with emphasis on significance for Greek thought and religion. Slides and tapes illustrate influence of Greek myths on art, music, and literature of ancient Greek and later cultures. (Same as Religious Studies 3210.)

3220 Greek Mythology in the Classical Period (3) A study of use of myth in literature, history, religion, philosophy, and art of Classical Age of Greece, and change of attitude toward myth from earlier periods.

Familiarity with basic Greek myths is assumed. Reading, lectures, slides, and discussion. (Same as Religious Studies 3220.)

3230 Roman Mythology (3) Study of myths created by Romans, as well as those the Romans borrowed from Greeks, with reference to Roman attitude toward history, religion, and society. Readings, lectures, slides, and discussion. (Same as Religious Studies 3230.)

3310 Art and Archaeology of the Aegean Bronze Age and Early Greece (3) Troy, the Cyclades Islands, Greek mainland, and Crete. Emphasis on palaces of Crete and Mycenae, Tiryns, and Pylos, their fall, the following Dark Age, and rebirth of Greek civilization. Illustrated lectures.

3320 Art and Archaeology of Archaic and Classical Greece (3) Survey of development of Greek architecture, sculpture, and painting from 650 B.C. to death of Alexander. Illustrated lectures.

3330 Art and Archaeology of Hellenistic Greece and Rome (3) Hellenistic Greek, Etruscan, and Roman sculpture, painting, and architecture with attention to city planning, Illustrated lectures.

3340 Cities of the Greek and Roman World (4) Archaeological survey of Greek and Roman cities from 3000 B.C. to 500 A.D. with emphasis on development of city planning and quality of life. Such cities as Mycenae, Athens, Priene, Alexandria, Rome, and Lepcis Magna will be studied.

3350 Shrines and Sanctuaries of the Greek and Roman World (4) Survey of major shrines and sanctuaries of Greek and Roman world with emphasis on archaeological remains. Such sites as Olympia, Epidaurus, Paestum, Cumae, Praeneste, and Baalbek will be considered. Readings in selected classical authors will add to understanding of place of great shrines and sanctuaries in Greek and Roman life.

4010 Greek Drama in English Translation (3) Survey of dramatic masterpieces of Greek literature.

4101 Foreign Study (1-16) See page 177.

4210 Teaching of Latin (3) Carries no language credit. For description see Education, Curriculum and Instruction 3656. (Same as Educ. C&I 3656.)

4220 Seminar in Classical Studies (3) Special problems in literatures and other arts of Greece and Rome. For graduate students and advanced undergraduates. May be repeated for credit with permission of department.

4230 Classical Mythology and Its Uses (3) Intensive review and survey of Greek and Roman mythology for graduate students and advanced undergraduates. Emphasis on uses of classical mythology in literature, music, and plastic arts, especially of modern times.

4510 Selected Readings in Latin Literature in Translation (3) Content varies; may be repeated for credit with permission of department.

GRADUATE

5620 Problems in Old World Archaeology (3)

Comparative Literature

See Cultural Studies.

Computer Science (266)


Associate Professors: R.M. Aiken, Ph.D. Northwestern; C.E. Hughes, Ph.D. Pennsylvania State; S.M. Selkow, Ph.D. Pennsylvania.

*Indicates that the professor is a member of the College of Liberal Arts.
3410 Computer Programming-COBOL (3) Computer programming in business oriented language COBOL. Prereq: 1410 or 1510 or 3150 or permission of instructor.

3910 Commercial Computer Concepts and Control (3) Elements, operation, and control of computers in a business environment. Topics include input, storage, data manipulation, output, flowcharting, and error control. Prereq: 3410 and Accounting 2210.

4310 Computation in Statistical Analysis (3) Use of digital computer in standard statistical analyses, such as frequency tabulations, percentiles and data reduction, correlation and regression, analyses of variance. Elementary programming in a problem-oriented scientific language, e.g., FORTRAN. Prereq: Statistics 2120 or equivalent. 3 lectures. Not for credit for computer science majors.

4320 File Maintenance and Data Processing (3) Applied computer programming. Error analysis of FORTRAN programs, overlay structures, maintenance of tapes and direct access information storage files, use of utility programs, sort and merge. (Not for credit for computer science major.) Prereq: one course in FORTRAN programming.

4330 Special Projects in Applied Programming (3) Applied programming in area of student's primary interest, using the digital computer. To be directed by computer science faculty, perhaps jointly with student's faculty adviser. Oral and written reports. Prereq: programming experience. 1-3 hours. May be repeated for a maximum of nine hours credit.

Intermediate and Advanced Courses

3510 Computer Organization and Programming I (3) Problem formulation and advanced programming in FORTRAN: operation and control of digital computers. Prereq: 1510, 2510, or 3150 or permission of instructor.


3715 Discrete Structures (3) Introduction to discrete structures useful in computer science. Sets, set logic, relations, functions, proof techniques, graph theory, lattices, Boolean algebras. Prereq: 1510 and Math 2860 or equivalents. (Same as Mathematics 3715).

4035-45 Introduction to Numerical Linear Algebra (3, 3) Floating-point numbers and arithmetic on modern digital computers; numerical algorithms for solving systems of linear equations; linear least-squares methods and eigenvalue computations. Prereq: 3150 or 3155. (Same as Math 4035-45.)

4225-35 Introduction to Numerical Analysis (3, 3) (Same as Math 4225-35.)

4510 Data Structures and Nonnumeric Programming (3) Data structures and algorithms for their manipulation. Arrays and orthogonal data sets; stacks, queues, rings, doubly-linked lists, trees, dynamic storage allocation, organization of files, program structures. Prereq: 3520 or permission of instructor.


4620 Operating Systems—Case Studies (3) Alternatives in operating system design, dynamic relocation, paging, segmentation, data sharing, time slicing, protection, concurrency, real time systems. Examples from different operating systems analyzed as appropriate. Prereq: 4510 or equivalent permission of instructor.


4820 Introduction to Pattern Recognition (3) (Same as Elec. Eng. 4820.)

4830 Digital Image Processing (3) (Same as Elec. Eng. 4830.)

4850 Small Computer Systems (3) (Same as Elec. Engr. 4850.)

4910 Analysis and Management of Computer Installations (3) Analysis and design of computer systems; implementation, justification, personnel in systems; perspective on systems. Prereq: 3520 or equivalent.

4980-90 Special Studies in Computer Science (1-4, 1-4) Credit determined at time of registration. May be repeated for credit to maximum of 9 hours with permission of department. Prereq: recommendation of computer science staff.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5010 Computer Assisted Instruction (3)

5050 Computer Modeling and Simulation of Physical Systems (3)

5210 Artificial Intelligence (3)

5250 Medical Computing (3)

5430 Compiler Design (3)

5455 Finite Difference Methods for Partial Differential Equations (3)

5465 Mathematical Aspects of the Finite Element Method (3)

5655-65-75 Numerical Mathematics (3, 3, 3)

5670-80 Advanced Operating Systems (3, 3)

5710 Finite Automata Theory (3)

5730 Computability and Computational Complexity (3)

5750 Theory of Formal Languages (3)

5810 Information Organization and Retrieval (3)

5840-50 Pattern Recognition (3, 3)

5910-20-30 Special Topics in Computer Science (1-3, 1-3, 1-3)

5940-50 Advanced Small Computer Systems (3, 3)

5970-80-90 Seminar (1-3, 1-3, 1-3)

Cultural Studies

Director: Dr. Charles Jackson

Basic Staff: S.R. Blaschei, Ph.D. History; J.S. Elliott, Ph.D. Russian; D.M. Fiske, Ph.D. Russian; C.O. Jackson, Ph.D. History; S.B. Kurtz, Ph.D. Sociology; H.E. Lowder, Ph.D. German; D.H. Littlejohn, Ph.D. Special Programs; C.J. Meier, Ph.D. German; M.E. Peele, M.A. History; M.P. Rice, Ph.D. Russian; H.C. Rutledge, Ph.D. Classics; P.B. Scott, Ph.D. Economics; Z. Shinakawa, M.A. Special Programs; S.E. Young, Ph.D. Music.

*On leave.
The ideal curriculum encourages not only proficiency in a given field of knowledge but also the comprehension of similarity and complementarity between areas of intellectual endeavor. One answer to the need for fusion and integration of knowledge is the interdisciplinary program. The College has joined the resources of several departments to offer a cultural studies major with concentrations in American studies, Asian studies, Black studies, comparative literature, Latin American studies, linguistics, Medieval studies, and Russian and East European Studies. Minors are provided in Asian studies, Black studies, comparative literature, Latin American studies, linguistics, Medieval studies, and women's studies.

American Studies (099)

History 2510-20 (or equivalent honors courses) are prerequisite to a concentration in American studies which consists of 36 quarter hours: English 3010-20-30, American Studies 3010 and 4010, and 21 hours of upper-division electives dealing with the American experience. Nine hours of the elective group must be from one of the following disciplines: anthropology, economics, political science, or sociology. A list of acceptable elective courses is published annually by the American Studies Council.

For further information consult the chairman of the American Studies Committee, Dr. Charles Jackson.

3010 Introduction to American Culture (3) Explores dynamics and nature of contemporary American culture.

4010 Topics in American Culture (3) Content varies. May be repeated once.

Asian Studies (145)

This concentration consists of 36 quarter-hours, including Asian Studies 2510-20 and at least eight hours from Asian Studies 3310-20-30-40. In addition to courses with Asian studies numbers, courses from at least two other departments must be selected. The Asian studies minor consists of a total of 18 hours, including Asian Studies 2510-20 and at least 6 hours from Asian Studies 3310-20-30-40. Students completing the minor successfully will upon application to the program chairperson be awarded the Asian studies certificate in acknowledgement of the work. In addition to courses with Asian studies numbers, courses from at least two other departments must be selected from the list below.

For further information consult the chairperson of the Asian Studies Committee, Dr. Stephen Young.

Anthropology:
3510 Peoples and Cultures of Mainland Asia (3)
4500 Peoples of China I: Chinese Society before 1839 (3)
4510 Peoples of China II: Chinese Society after 1839 (3)
4570 Peoples of Southeast Asia (3)
4590 Peoples of Japan (3)

Art:
3775-76-77 History of Oriental Art (4, 4, 4)
4875-76-77 Studies in Oriental Art History (4, 4, 4)

Geography:
3870 Geography of Asia (4)

History:
3810-20-30 History of East Asia (3, 3, 3)

3780-90 History of the Middle East I, II (3, 3)
3795 Contemporary Middle East (4)
4811-21 History of Japan I, II (4, 4)
4870 Cultural History of China (3)
4880 History of Modern China (3)
4890 History of Contemporary China (3)

Music:
4260 Introduction to Ethnomusicology (3)

Political Science:
3621-22 Politics of Asian States (4, 4)
3641-42 Government and Politics of Middle East and North Africa (4, 4)

Philosophy-Religious Studies:
3630 World Religions (4)
3650 Philosophy and Religion in India (4)
3660 Buddhist Philosophy and Religion (4)
3670 Religion and Philosophy in China and Japan (4)

Religious Studies:
3660 Early Egypt (4)
3760 Eastern Religions and Western Thought (3)
3770 Zen Buddhism (3)
4670 Topics in Eastern Religions (4)
4960 Tradition, Change and Modernity in Asia (4)

Romance Languages
Arabic:
1510-20 Spoken Arabic (4, 4)
2510-20 Elementary Modern Standard (4, 4)
3510-20 Intermediate Modern Standard (4, 4)
3610 Islamic Literature in English Translation (4)

2510-20 Asian Civilization (4, 4) Introduction to Asian civilization by comparative study of development of religion, social institutions, and high culture in India, China, Japan and the Islamic world. Prereq: 2510-20.
2531-32 Elementary Chinese (4, 4) Must be taken in sequence.
2531-32 Elementary Japanese (4, 4) Must be taken in sequence.
3000 Selected Topics in Asian Studies (4)
3310-20-30-40 Asian Cultures (4, 4, 4, 4) Readings in translation from classical and modern literature together with study of religion/philosophy, society, art and music. 3310-India; 3320-China; 3330-Japan; 3340-Islam.
3531-32 Intermediate Chinese (4, 4) Prereq: 1521-22 or equivalent or permission of instructor; must be taken in sequence.
3631-32 Intermediate Japanese (4, 4) Prereq: 2621-22 or equivalent or permission of instructor. Must be taken in sequence.
4010-20-30 Readings in Asian Literature (4, 4, 4) Prereq: Mastery of intermediate level of Japanese, Chinese, or Sanskrit and permission of instructor.
4012 Selected Topics in Asian Studies (4) Content varies. May be repeated. Maximum 12 hours credit.

Black Studies (195)

The concentration in Black studies and the minor in Black studies offer in-class, independent, and off-campus study to foster knowledge of the Black experience through a traditional academic approach as well as experiential learning. Black Studies 2010-20 are prerequisites to the concentration which consists of 36 hours from the Black studies curriculum. A minimum of 24 hours must be in upper division credit. Every student's program must include some individualized work under Black Studies 4102, 4103, and 4310, the nature of which should be negotiated with the program Director. A maximum of 8 hours in 4102 and 4103 combined can be applied to a major concentration, and a maximum of 4 hours in 4102-4103 combined can be applied to a minor. In addition, courses from at least two other departments must be selected.

For further information consult the coordinator of the Black Studies Committee, Mr. Marvin Peak.

2010-20 Introduction to Black Studies (4, 4)
3140-50-60 Directed Readings in Black Studies (1, 1, 1) Designed for students who are interested in doing intensive reading in some area of Black studies which is defined by the student and the instructor. Prereq: 2010 (or 2020) and permission of instructor.
3330 Prejudice and Racism in the United States (4)
3340 Sociology of Poverty and Inequality (4)
3490 African Religions (4)
3550 Religion and Racism in America (4)
3560 Black Religion in America (4)
3630-40 The Education of Black People (4, 4) Sequence will trace, analyze and interpret educational systems established for and by Blacks. Special emphasis will be given to educational experiences and the Washington-DuBois controversy in 3630; 3640 will deal with present urban educational problems of Blacks. Recent proposed remedies and solutions as integration, compensatory programs, decentralization, voucher systems; Black Studies and Freedom Schools will be discussed. 2010-20, History 1950-60 recommended. Prereq: consent of instructor.
4101 Foreign Study (1-16) See page 177.
4102 Off-Campus Study (4-8) See page 177.
4200 Independent Study (1-8) See page 177.
4310 Research in Black Studies (4) Deals with Black experience and research process.
4500 Current Issues and Topics in Black Studies (3-4) Prerequisites. Topics and issues in area of Black studies. Content and credit determined by instructor. May be repeated. Maximum credit 12 hours.
4810 Afro-American Families (3) (Same as Child and Family Studies 4810.)
4880 Afro-American Psychology (3) See page 177.

Anthropology:
3510 Peoples and Cultures of Mainland Asia (3)
4530 Peoples of China I: Chinese Society before 1839 (3)
4540 Peoples of China II: Chinese Society after 1839 (3)
4550 Peoples of Southeast Asia (3)
4560 Peoples of Japan (3)

Art:
3775-76-77 History of Oriental Art (4, 4, 4)
4875-76-77 Studies in Oriental Art History (4, 4, 4)

Geography:
3870 Geography of Asia (4)

History:
3810-20-30 History of East Asia (3, 3, 3)
History 1950-60 Afro-American History: An introduction (4, 4)
History 2950 Introduction to Afro-American History (3)
History 4950-60 The Negro In American History (3, 4)
Music 3350 Introduction to Afro-American Music (4)
Music 4270 Evolution of Jazz (3)
Political Science 3615-16 Black Africa: The Politics of Change and Stability (4, 4)
Political Science 3555 Minority Group Politics in the U.S. (4)
Psychology 4880 Afro-American Psychology (4)
Religious Studies 3550 Religion and Racism in America (4)
Religious Studies 3560 Black Religion in America (4)
Sociology 3330 Race, Class, and Power (4)
Sociology 3340 Sociology of Poverty and Inequality (4)
Sociology 4820 American Minority Ethnic Groups (4)
Speech 4582 Black Rhetoric (4)

Recommendations for the concentration and the minor:
1. Those with a concentration in Black studies are encouraged to take a second major, with which an individually designed program in Black studies can be correlated.
2. Students should seek academic advising from the Chairman of Black Studies for courses for the concentration or the minor which relate to career plans, preparation for graduate study, and relationship to the second major.
3. Those with a concentration and a minor are strongly encouraged to combine classroom and experiential learning through a careful selection of courses, e.g. Human Services 4400 and/or Black Studies 4102.

Comparative Literature (260)

A concentration in comparative literature consists of 36 hours including Comparative Literature 4010, 4012-22-32, 9 hours of literature in a foreign language in courses numbered 3000 and above, and one Classics course selected from Classics 4010, 4230, 4510. The remaining twelve hours should include literature courses, either in English or in a foreign language, numbered 3000 and above, from at least two of the following departments: English, Germanic and Slavic Languages, Religious Studies, Romance Languages (certain courses in Philosophy and Speech and Theatre may be substituted with the approval of the chairperson of the Comparative Literature Program). Students concentrating in comparative literature are strongly encouraged to acquire a working knowledge of a second foreign language, especially if they hope to pursue comparative literature on the graduate level.

A minor in comparative literature consists of 24 hours including Comparative Literature 4010, two courses from Comparative Literature 4012-22-32, 6 hours of literature in a foreign language in courses numbered 3000 and above, and 9 hours of literature courses numbered 3000 and above, either in English or in a foreign language, from at least two of the following departments: Classics 4010, 4230, 4510, English, Germanic and Slavic Languages, Religious Studies, and Romance Languages (certain courses in Philosophy or Speech and Theatre may be substituted with the approval of the chairperson of the Comparative Literature Program). Minors in comparative literature are strongly encouraged to continue their study of a foreign language beyond the minimum requirement.

For further information, consult the chairman of the Comparative Literature Committee, Dr. Harry C. Rutledge.

2010 Introduction to Comparative Literature (4)
Basic knowledge, techniques, and sources necessary to compare literatures of various cultures, ages, and nations.

4010 Methodology of Comparative Literature (3) Research and writing of comparative literary studies. Major project will be preparation of seminar paper in comparative literature. Prereq: 2010 and one course from 4012-22-32 or permission of instructor.

4012-22-32 Special Topics in Comparative Literature (3, 3, 3) Content varies; may be repeated for credit.

5012 Comparative Theories of Literature (3)
5022 Approaches in Comparative Literature (3)
5032 Studies in Comparative Literature (3)
Classics 3210-20-30 Greek and Roman Mythology (3, 3, 3)
Classics 4010 Greek Drama in English Translation (3)
Classics 4510 Selected Reading in Latin Literature in Translation (3)
English 3411-12-20-30 Modern Drama (3, 3, 3, 3)
English 3710 Literature of the English Bible (3)
English 3910-20-30-40 Comparative Literature (3, 3, 3, 3)
English 4720 Folklore (3)
English 4730 Popular Ballad (3)
English 4950 Approaches to Literature (3)
English 5860 Introduction to Literary Research (3)
German 3210-20-30 Masterpieces of German Literature in English Translation (3, 3, 3)
German 4030 German Drama in English Translation (3)
German 4040 The Modern German Novel in English Translation (3)
German 4050 The Faust Legend (3)
Russian 3210-20-30 Survey of Russian Literature in English Translation (3, 3, 3)
Romance Languages 4010 Masterpieces of French Literature in English Translation (3)
Romance Languages 4020 Masterpieces of French Drama in English Translation (3)
Romance Languages 4030 Masterpieces of Spanish Literature in English Translation (3)
Romance Languages 4040 Masterpieces of Spanish Drama in English Translation (3)
Romance Languages 4050-60-70 Dante and Medieval Culture (3, 3, 3)

Greek and Roman Civilization

The Greek and Roman civilization concentration consists of Classics 2810 and 2820 and 30 hours from courses numbered above 3000. Students are encouraged to satisfy the Triad requirement in language, literature and the arts with either Greek or Latin in either Option 1 or Option 2. The following courses are required in this concentration: Classics 4010 and 4510; 9 hours from Classics 3210-20-30, 3310-20-30. For no more than 6 of these 15 hours students may substitute courses numbered above 3000 in Greek and Latin (exclusive of any courses taken to satisfy the Triad requirement). Upon consultation with the adviser the student may take the remaining 15 hours from the following courses: History 3750-60-70; Philosophy 3111-3121, 4410-20; Religious Studies 4310. Students could include Classics 4220 or History 4000 when the student has completed no less than 30 hours in Greek and Latin; Classics 4220 or History 4000 may be included for a maximum of 6 hours with permission of the department.

For further information, consult the chairman of the program, Dr. Harry Rutledge.

Latin American Studies (600)

Concentration consists of 36 hours including Spanish 3710-20 or Portuguese 3510-20, History 3870-80-90, Political Science 3625-26, and Geography 3800 or 3790 and 7 hours of acceptable elective courses in any of the participating departments or in the Latin American studies sequence 2510-20 (4, 4) or Independent Research 4010.

Two years of Spanish or Portuguese or a practical working knowledge acquired independently are a prerequisite.

Minor: Consists of 24 quarter hours selected from Geography 3800 or 3790, History 3870-80-90, Political Science 3625-26, and Spanish 3710-20 or Portuguese 3510-20, and the Latin American studies sequence 2510-20 or Independent Research 4010.

For further information, consult the chairman of the Latin American Studies Committee, Dr. H.E. Lewald.

2510-20 Introduction to Latin American Studies (4, 4) Introduction to societies of Latin America with special emphasis on dominant culture patterns, social changes, and impact of nationalism. 2510-20: Pre-Colonial and Colonial periods through Independence era; 2420—Latter 19th Century and the Modern period.

4010 Independent Research in Latin American Studies (3-9) Directed research in any topic fully related to Latin American studies to be undertaken by a student off campus, normally in a Latin American country. The research must be approved and evaluated by the Latin American Studies Committee and directed by a faculty member involved in the study of the Latin American area. Credit to vary according to the scope and length of the project.

4970 Senior Seminar (3-4) Selected topics in Latin American studies. May be repeated with permission of instructor.

Linguistics (623)

This cultural studies concentration offers a broad exposure to the various fields of linguistics (including historical, descriptive and theoretical linguistics) along with an opportunity to study areas where linguistics
Medieval Studies (674)

A concentration in Medieval studies focuses upon culture and society from the collapse of the Roman Empire to the sixteenth century. Such a concentration offers the opportunity to deepen one's self-awareness and broaden one's view of the range of human possibilities by studying a very different and remote culture—its conditions of life, social and political institutions, values and ideals, and modes of perception and expression.

A concentration in Medieval studies consists of Medieval Studies 2010 and 4010 and 28 hours of upper division courses concerned primarily with the medieval experience, divided among the following three categories: (1) history, philosophy, political science, and religious studies; (2) language and literature; (3) the arts—history of art, architecture, music, and speech and theatre. Courses should not be selected at random but should either form a related pattern (for example, courses in the literature and history of Medieval England or Italy, etc.) or should revolve around a particular discipline, or two closely related disciplines (for example, courses in the history of art and architecture). A minor in Medieval studies consists of Medieval Studies 2010 and 4010 and 16 additional hours distributed among the categories listed above for the major concentration. Each student's program, major or minor, must be approved in advance by the Medieval Studies Coordinating Committee, chairperson Sarah Blanshei, 1113 McClung Tower.

It strongly recommended that students selecting the Medieval studies concentration choose a foreign language option for the Triad requirement (options 1 or 2). Latin is the most appropriate language for students and is essential for those who plan to continue their studies in graduate school. In addition, students planning to go on to graduate school are strongly advised to supplement their Medieval studies concentration with extensive work in one of the traditional disciplines.

2010 Medieval Civilization (4) Introduction to basic themes in medieval experience, approached from interdisciplinary points of view and including philosophy and religion, art and architecture, language and literature, social and political history.

4010 Seminar in Medieval Studies (4) Interdisciplinary treatment of selected topics.

Upper division courses for the concentration in Medieval studies may be chosen from the list of courses below.

Category #1 History, Philosophy, Political Science and Religious Studies.

History 3061 History of Western Religious Thought (6) and Institutions (4)

History 3411 Renaissance (3)

History 3710 History of Germany (3)

History 3780 History of Middle East (3)

History 4011 European History Colloquium (3) (when subject is part of medieval culture and society)

History 4500 History of Medieval England (3)

History 4710-20-30 Medieval History (3, 3, 3)

Philosophy 4430 Medieval Philosophy (4)

Political Science 3802 Studies in Political Thought (4)

Religious Studies 3061 History of Western Religious Thought and Institutions (4)

Religious Studies 3411 Renaissance and Reformation (4)

Religious Studies 4610 Topics in Western Religious Thought and Institutions (4) (when subject is part of medieval culture and society)

Category #2 Language and Literature

Classics 4310 Selected Reading from Latin Literature (3) (readings in Latin)

Comparative Literature 4012-22-32 Special Topics in Comparative Literature (3, 3, 3) (when subject is part of medieval culture and society)

Comparative Literature 4050-60-70 Dante and Medieval Culture (3, 3, 3)

English 4410 Introduction to Study of English Language (3) (no language requirement)

English 4420 History of English Language (3) (no prerequisites)

English 4910-20 Chaucer (3, 3) (readings in Middle English)

French 4350-60-70 Medieval French Literature (3, 3, 3) (readings in French)

French 4410 French Civilization (3) (readings in French)

French 3210 French Literature in English Translation (3)

German 4310 History of German Language (3) (readings in German)

German 3210 German Literature in English Translation (3-4)

German 3240 Old Norse Literature in English Translation (3)

Italian 4050-60-70 Dante and Medieval Culture (3, 3, 3) (readings in English or Italian)

Italian 4330 History of Italian Language (3) (readings in Italian)

Italian 4410 Italian Drama in English Translation (3) (or in Italian)

Spanish 4050-60-70 Hispano-Arabic Literature and Culture (3, 3, 3) (in English translation)

Category #3 The Arts

Architecture 4010 Special Problems in Architecture (1-8) (when subject is part of medieval culture and society, e.g. Gothic and Scholasticism)

Architecture 4130 Seminar in Medieval Architecture (4)

Art 3704 History of Medieval Art (4)

Art 3715 Early Italian Renaissance Art, 1300-1500 (4)

Art 3705 Northern European Painting, 1350-1600 (4)

Music 4200 Independent Study in Music History and Literature (1-3) (when subject is part of medieval culture and society)

Music 4280 The Mass to 1600 (3)

Music 4290 Gregorian Chant (3)

Theater 3252 History of the Theater (4)

Russian and East European Studies (887)

There are two approaches for the student to take in designing a program with a concentration in Russian and East European studies:
Track I is designed for students whose major interest is in a career in the academic world or in some branch of governmental service. Prerequisites to this track are Russian 2510-20 and 2640-50. The track consists of Economics 4000; Geography 3880; six hours from History 3470-30-90, 4470, 4480, and 4490; Political Science 4815 and four hours from Political Science 3631-32, 3715; Russian 3110-20-30 or 3810-20-30; and six hours from Russian 3210-20-21-30, 3240, 3250, 3260.

Track II is designed for students whose major interest is in a career in the world of international business and/or finance specifically oriented toward trade with the Soviet Union and Eastern Europe. Prerequisites to this track are Russian 2510-20 and 2640-50. The track consists of Economics 3210, 4000, and 4230; three hours from History 3470-80-90 and three hours from History 4480, 4490, or Geography 3880; Political Science 4815 and four hours from 3631-32, 3715; Russian 3110-20-30 or 3810-20-30; Marketing 4230; and Finance 4420. For further information, consult the chairman of the Russian and East European Studies Committee, Dr. Martin Rice.

4010 Selected Topics in Russian and East European Studies (3) An interdisciplinary seminar on a selected topic using a comparative approach.

Women's Studies (994)

Minor: Consists of Women's Studies 2010-20 and 16 hours of appropriate courses numbered 3000 or above. Supporting courses are drawn from several departments and colleges on the UTK campus. A list of available courses will be published annually by the Women's Studies Committee. For further information, consult the chairman of Women's Studies, Dr. Suzanne Kurch.

2010-20 Women's Studies (4, 4) Explores basic knowledge and sources necessary to understand current and past societal experiences of women. 2010 utilizes perspective of humanities; 2020 employs that of social sciences.

Cultural Studies (270)

4000 Selected Interdisciplinary Cultural Topics (1-12) Acceptable for credit in any cultural studies concentration or minor except Black Studies. Registration by consent of Director of Cultural Studies and the respective chairperson. May be repeated for credit up to a maximum of 12 hours.

4101 Foreign Study (1-16) Acceptable for credit in any cultural studies concentration or minor except Black Studies. Registration by consent of Director of Cultural Studies and the respective chairperson. See page 177.

4102 Off-Campus Study (1-16) Acceptable for credit in any cultural studies concentration or minor except Black Studies. Registration by consent of Director of Cultural Studies and respective chairperson. See page 177.

4103 Independent Study (1-16) Acceptable for credit in any cultural studies concentration or minor except Black Studies. Registration by consent of Director of Cultural Studies and the respective chairperson. See page 177.

GRADUATE

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

Ecology (278)

J. Frank McCormick, Director.

Basic Faculty:


The Graduate Program in Ecology offers Master of Science and the Doctor of Philosophy degrees. This interdepartmental program provides advanced courses in contemporary ecology for students from undergraduate programs in basic and applied biology, social sciences, mathematics and engineering. Research opportunities in both fundamental and applied ecology are intended to prepare students for academic careers as well as professional positions in industry or government. The Environmental Sciences Division of the Oak Ridge National Laboratory and the Tennessee Valley Authority provide advisers and research facilities. The Great Smoky Mountains, Cumberland Plateau, valley and ridge topography, TVA lakes and wild rivers provide locally a spectrum of natural habitats and consequent biological diversity which is truly unique. Additionally, faculty research programs provide opportunities for student research elsewhere on this continent and abroad.

ADMISSION

Requirements for admission to this program are: (1) admission to the Graduate School of The University of Tennessee; (2) at least 12 quarter hours of college chemistry, 9 quarter hours of college mathematics, and 4 quarter hours of ecology at the upper division level. Candidates for the doctoral degree are expected to take the Graduate Record Examination.

Application forms for admission should be obtained from the Graduate School. Inquiries concerning the admission requirements should be addressed to the Director, Graduate Program in Ecology, 408 10th Street, University of Tennessee, Knoxville, Tennessee 37916.

COURSES ACCEPTABLE IN PROGRAM

Agricultural Biology

4010 Biology of Soil Microorganisms (4)

4510 Freshwater Fishery Biology (4)

4520 Management of Lakes and Ponds (4)

Botany

4310 Plant Ecology (4)

5340 Plant Geography (4)

5350 Analysis of Plant Communities (4)

5510-20-30 Systems Ecology (3, 3, 3)

5830 Field Methods in Plant Ecology (4)

Ecology

5000 Thesis

5100 Special Problems in Ecology (1-3)

5210-30 Principles of Ecology (2, 1, 2)

5310 Ecology for Planners and Engineers (3)

5320 Implementation of Environmental Policy (3)

6000 Doctoral Research and Dissertation

6100 Special Topics in Ecology (3)

6110 Seminar in Animal Behavior (2)

6120 Seminar in Aquatic Ecology (2)
English (339)


Assistant Professors: J. M. Armstrong, Ph.D. Duke; D. R. Cox, Ph.D. Maryland; R. T. Coyle, Ph.D. Georgia; N. G. Goolsby, Ph.D. Yale; N. M. Gooley, Ph.D. Yale; A. J. Heffernan, M.A. New York; M. A. Latent, Ph.D. Maryland; M. P. Richards, Ph.D. Wisconsin.


*Alumni Distinguished Service Professor: John C. Hodges Professor.*

**UNDERGRADUATE**

**Major:** (36-39 hours) Two courses in English at the 3000-level are prerequisite to a major, which consists of the following requirements:

1. (English 2150, which should be taken as soon as possible after the student has elected the first quarter of residence at the University.)
2. (Upper Division courses in English (27 hours))

Nine English courses at the 3000 and 4000 level should be distributed over a broad spectrum of British and American Literature, either

(a) by taking 15 hours in the British and American upper-division surveys (9 hours British and 6 hours American literature), and 6 hours from English 3010-20-30 and the remaining 12 hours in individual author and genre courses or in English linguistics; or

(b) by taking 8 hours each from the courses listed below under categories A, B, and C with the remaining 9 hours arranged to form a coherent program.

Three hours of advanced writing (Category D) below may fulfill a part of either (a) or (b) above.

<table>
<thead>
<tr>
<th>Additional courses in literature or language (6-9 hours), either</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) 8-9 hours of 3000-level literature in a foreign language; or</td>
</tr>
<tr>
<td>(b) 8-9 hours of comparative literature or foreign literature in translation, at least half at the upper-division level.</td>
</tr>
</tbody>
</table>

**Corequisites:** English majors must complete the equivalent of the second (2000-level) year of a foreign language. Special Programs for the Major—The Departmental Committee on the Major is empowered to approve the individualized programs developed by students in consultation with their advisors. These programs need not necessarily fulfill all of the requirements listed above.

**HOURS FOR STUDENTS WHO QUALIFY:** Students for whom English may be required as a Foreign Language, English Department offers a program of individualized study in the foreign language, culminating in a senior thesis and comprehensive examination. If these two are passed with grades of B or better, the student will be graduated with honors in English.

**CLASSIFICATION OF UPPER-DIVISION ENGLISH COURSES FOR THE MAJOR**

A. To the Eighteenth Century: 3510, 3520, 3530, 3540, 3571, 3580, 4510, 4511, 4540, 4541, 4542, 4543, 4544, 4545, 4546, 4547, 4548.


C. Nineteenth and Twentieth Century: 3030, 3070, 3080, 3140, 3150, 3210-20, 3411-12-20-30, 3930, 3940, 4060, 4210-20, 4300-20-40, 4620, 4652, 4660, 4680.

D. Advanced Writing: 3450, 3460, 3470, 3830, 4960.

Minor: 24 hours, including at least 18 at the upper-division level.

**American Studies—See Cultural Studies.**

**Comparative Literature. See Cultural Studies.**

**Certification for Teaching English and Speech in Tennessee.**

Consult Certification Clerk, Room 212, Claxton Education Building.

**General Prerequisites:** English 1510-20 or equivalent are prerequisite to all English courses numbered above 2000.

*Note:* English 1510-20 and English 1518-28 are offered on a grade system of A, B, C, I, NC, W.

1211 Written and Oral English for Foreign Students (8) Rapid review of English grammar structures and pronunciation with intensive oral, aural, and written drill. Required during the first quarter of residence of all foreign students (graduates, undergraduates and transfer students) who are not exempt from it on the basis of the English Proficiency Examination required of every new foreign student.

1221 Written and Oral English for Foreign Students (6) Emphasis on the more advanced structures of English grammar and on paragraph writing. Required during the first quarter of residence of foreign students who on the English Proficiency Examination demonstrate need for work in English structure, but not at the intensive level of English 1211. Required also of foreign students who complete 1211.

1231 English Composition for Foreign Students (4) Composition and reading for students whose native language is not English. Emphasis on organization, paragraph, and theme structure, with attention to grammar and mechanics. (Offered by arrangement based on English Proficiency Examination.)

*English 1231-1-1 replaces English 1510-20 for undergraduate foreign students.*
1241 English Composition for Foreign Students (4)†
Trial writing problem—recovered by foreign undergraduate and graduate students, with attention to writing based on reading, use of language, and documentation. Prereq: English 1231 or recommendation based on English Proficiency Examination.

1251 English Pronunciation for Foreign Students (3) Sounds and pronunciation patterns of American English and relation of spelling to sound. Designed to improve student’s ability to speak and understand English. May be repeated. Maximum 6 hours credit. 5/NC. (Same as Audiology and Speech Pathology 1281.)

1510-20 English Composition (4, 4) Writing, revising, conferences; intensive reading for meaning and ways of expressing meaning. 1510—Writing with emphasis on organization, paragraph structure, style; attention to grammar and mechanics. 1520—Writing based on reading of literature; use of library and preparation of documented papers. Must be taken in sequence. A, B, C, 1; N/C, W grading.

1518-28 Honors: English Composition (4, 4) For students selected on basis of placement scores and high school record. Must be taken in sequence. A, B, C, 1, N/C, W grading.

1550 Research Writing (2) Use of library, forms of documentation, preparation of research paper. Prereq: English 1510.

1570 Colloquium for English Majors (3) Introduction to methods and objectives of literary study; conferences to plan student’s program in major.

2510-20 English Masterpieces (4, 4) 2510—To the mid-eighteenth century. 2520—Since the mid-eighteenth century.

2530 American Masterpieces (4)

2540 The Literature of Black America (4) Poetry, fiction, drama. Emphasis on twentieth century.

2560-70-80 Literature of the Western World (4, 4, 4) 2560—Ancient and medieval. 2570—Renaissance through the eighteenth century. 2580—Nineteenth and twentieth centuries.

2590 Special Topics (4) Content varies. Each section will deal with specific topic as it is embodied in works from several historical periods and literary genres. Topics will be announced.

2640-50 English Culture (4, 4) 2640—Beginnings to the late eighteenth century. 2650—From the late eighteenth century to the present.

2660 Introduction to Drama (4) Study of selected plays to provide critical techniques necessary for understanding of drama.

2670 Introduction to Poetry (4) Study of selected poems to provide critical techniques necessary for reading of different types of poetry.

2680 Introduction to the Novel (4) Study of selected novels to provide critical tools necessary for judging longer works of fiction.

3010-20-30 American Literature (3, 3, 3) 3010—John Smith through Poe. 3020—Emerson through Mark Twain. 3030—Henry James to present.

3070 Modern British Poetry (3) From Housman to Thomas and more-recent poets.

3080 Modern American Poetry (3) From Robinson to Stevens and more-recent poets.


3150 Melville (3)

3160 The Short Story (3) British and Continental European, with emphasis on twentieth century.

3170 The American Short Story (3) From nineteenth-century beginnings to present, emphasis on twentieth century.


3310 Women Writers in England and America (3) Emphasis upon the literary consciousness of women in the nineteenth and twentieth centuries.

3330 Introduction to Study of English Language (3)

3340 Varieties of English (3) Theories, methodologies, and findings of English and American dialectology.

3360-70 Old and Middle English Literature (2) 3360-Old English heroic and elegiac poetry and major genres of early Middle English. 3370-Backgrounds and distinguishing characteristics of Middle English literature from 1300 to 1500.

3411-12-20-30 Modern Drama (3, 3, 3, 3) 3411—Continental, 1890-1912—Continental since 1930. 3420—British. 3430—American. (Graduate credit normally limited to students in Speech and Theatre.)

3440 Literature and Film (3) Aesthetic relationships, emphasis upon media comparison.

3450 Writing of Fiction (3) Practice based upon analysis of modern fiction. (Sophomores admitted with instructor’s written permission.)

3460 Advanced Fiction-Writing (3) Prereq: English 3450 and permission of instructor.

3470 Writing of Poetry (3) Practice based upon analysis of poetry.

3510 Sixteenth-Century Prose and Poetry (3) More and Wyatt to Spenser.

3520 Elizabethan Drama (3) Marlowe, Jonson, and others.

3530 Jacobean Drama (3) Beaumont and Fletcher to Massinger and Shirley.

3610 Restoration and Eighteenth-Century Poetry (3) Emphasis upon Dryden and Pope.

3620 Restoration and Eighteenth-Century Drama (3) Dryden through Sheridan.

3630 Restoration and Eighteenth-Century Prose (3) Defoe, Addison, Steele, Swift, and others.

3670 Age of Johnson (3)

3710 Literature of the English Bible (3) Types of Old Testament literature, excluding Wisdom literature. (Same as Religious Studies 3710.)

3711 Literature of the English Bible (3) Old Testament Wisdom literature and types of New Testament literature. (Same as Religious Studies 3711.)

3840-50 Writing of Non-Fiction Prose (3, 3) Strategies of writing on personal and academic subjects. Discussion of student and professional writing. Conferences on individual student’s goals and problems. Open to sophomores with instructor’s permission. 3840-How to find, develop, and present an idea. 3850-How to convince a reader through logical and emotional appeals.

3860 Special Topics in Writing (3) Original writing integrated with reading, usually taught by professional author. Topics vary. May be repeated. Maximum 9 hours credit.

3910-20-30 Comparative Literature (3, 3, 3) 3910—Ancient. 3920—Medieval and Renaissance. 3930—Modern.

3940 Novel of the Contemporary Western World (3) Proust, Joyce, Mann, and others.

4010-20 Shakespeare (3, 3) 4010—Early plays, c. 1590-1601, including I Henry IV, Twelfth Night, and Hamlet. 4020—Later plays, 1601-1613, with emphasis upon tragedies and dramatic romances.

4050-60-70 American Novel (3, 3, 3) 4050—From earliest sentiment novels through Brown, Cooper, and Kennedy, and major figures to 1875. 4060—Henry James and Mark Twain through early works of Faulkner and Hemingway. 4070—Early thirties to present.

4101 Foreign Study (1-16) See page 177.

4102 Off-Campus Study (3-12) See page 177.

4103 Independent Study (3-12) See page 177.

4118-28-38 Honors: Senior (3, 3, 3) Admission by permission of department.

4140-50 Technical Writing (3, 3) 4140—For students planning careers in physical, life and health sciences, engineering, agriculture, and forestry. Writing of proposals, laboratory and progress reports, abstracts, and journal articles. 4150—Writing of scientific feature articles in which data are marshalled and analyzed for human interest.

4210-20-30 Victorian Poetry (3, 3, 3) 4210—Taylor and Pre-Raphaelites. 4220—Browning. 4230—Arnold, Clough, FitzGerald, and others.


4430 Modern English Grammar (3) New approaches with emphasis on the generative-transformational approach.

4440 Language in Society (3) Methodology and significant discoveries of sociolinguistics in America.

4450 Dialectology (3) Theories and methodologies of dialect research, fieldwork and analysis. Prereq: 3340 or permission of instructor.

4460 Special Topics in English Linguistics (3) May be repeated for credit with permission of department.

4471-81 English as a Second or Foreign Language (3, 3) 4471—Applied linguistics in teaching and learning of English as second or foreign language. Phonological and grammatical structure of present-day English. Analysis of differences (phonological, grammatical, and lexical) between English and another language. Prereq: second year of a foreign language. 4481—Materials and methods of language teaching, with emphasis on preparation of materials and structured teaching situations. Theory of testing language competence and performance, with emphasis on construction of tests. Team teaching with an experienced member of the staff. Prereq: 4471. (Same as Linguistics 4471-81.)

4510 Introduction to Literary Criticism (3)

4610-20-30 Black Literature (3, 3, 3) Trends and developments.

4651 Southern Literature from 1585 to 1860 (3) Beginning of writing in the South, especially in its relations to formation of regional or southern tradition in literature.

4652 Southern Literature from 1860 to 1970 (3) Humorists, local colorists, and realists of later nineteenth century and New South; emphasis upon Southern flowering of 1920-1950, recent trends.

4660 Emerson and Thoreau (3)

4680 American Humor through Mark Twain (3)

4720 Introduction to Folklore (3)

4730 The Popular Ballad (3)

4850 Milton (3) Emphasis on major poems.

4860 Seventeenth-Century Prose and Poetry (3) Bacon and Donne to Marvell.
Geography (415)  

Professors: E.H. Hammond (Head); Ph.D. California (Berkeley); S.R. Juniper, Ph.D. Tennessee; R.G. Long, Ph.D. Northwestern; T.H. Schmudder, Ph.D. Wisconsin.  

Associate Professors: C.S. Aiken, Ph.D. Georgia; T.L. Bell, Ph. D. Iowa; J.W. Binkman, Jr., Ph.D. Wisconsin; J.B. Rehder, Ph.D. Louisiana State.  

Assistant Professors: J.R. Carter, Ph.D. Georgia; W.N. Cherry, M.S. Tennessee; B.A. Ralston, Ph.D. Northwestern.  

UNDERGRADUATE  

Major: Eight hours in courses numbered at the 1000 or 2000 level are recommended as an introduction to a major which consists of Geography 4100, 4710 and 4990, and an additional 28 hours selected from courses at the 3000 and 4000 level. At least one course must be selected from each of groups A, B, C, and D below:  

a. Physical Geography: 3520, 3530, 4550  
b. Economic Geography: 3410, 3430, 3490, 4610, 4630  
c. Cultural Geography: 3450, 3610, 3660, 4240  
d. Regional Geography: 3790, 3800, 3810 8340, 3870, 3880, 3910, 3920, 3930, 3940  

For those pursing a program leading to professional employment or graduate study in geography, 4210 and/or a senior project under 4103 are/is strongly recommended.  

Minor: Eight hours in courses numbered at the 1000-2000 level are recommended as an introduction to the minor which consists of 24 hours selected from courses at the 3000-4000 level.  

Students wishing to major or minor in geography are strongly urged to consult with a departmental undergraduate adviser. Through choices available within the structure of the major and by appropriate selection of electives outside the department, each student may develop a coherent program in accordance with his specific interests and needs. Such programs might emphasize particular aspects of geography itself or might develop interdisciplinary themes such as natural environment and resources, urban and regional planning or the culture, history or economy of a particular area. A useful technical or vocational specialty program is available which emphasizes cartography and remote sensing.  

Asian Studies. See Cultural Studies.  

Latin American Studies. See Cultural Studies.  

Russian and East European Studies. See Cultural Studies.  

1610-20 Introduction to Geography (4, 4) Selected problems or situations of contemporary interest are studied in depth, illustrating geographical points of view and techniques. Need not be taken in sequence. Not open to students who have taken 1110 and 1120, respectively.  

1810-20 Geography of the Natural Environment (4, 4) Characteristics and processes of earth's surface and lower atmosphere; their interaction to produce world patterns of distinctive emendation significant to man. Must be taken in sequence. 1810 not open to students who have taken 1710.  

1910-20-30 Economic Geography (4, 4, 4) The significance of location, pattern, and environment in economic activities. Emphases: 2110-agriculture; 2120-energy, minerals and manufacturing; 2130-transportation and trade. Need not be taken in sequence.  

3000 Man, Location, and Behavior (4) Types of human spatial behavior, such as shopping patterns, commuting, residential mobility, trade, and regional consciousness, as they relate to distance, natural environment, and culture. Order and regularity in pattern of human use of earth's surface.  


3430 Urban Geography (4) Concepts and theories concerning development and significance of systems of cities and internal morphology of cities. Not open to students who have taken 4660.  

3450 Rural Geography (4) Geographical appraisal of rural areas of the United States, including small towns and urban fringes. Problems and potentials of rural America.  

3490 Geography of Resources (4) Study of factors related to variations in resource availability from time to time and from place to place, with particular emphasis upon energy and metallic resources.  

3510 Meteorology (4) Introduction to dynamic atmosphere and resulting weather events. Nature of individual weather elements, their measurement and analysis over time and space.  

3520 The Atmospheric System and Man (4) Overview of general circulation system leading to world pattern of climates. Role of climate in agriculture, architecture, human comfort, and economic activity.  

3530 The Land-Surface System and Man (4) Nature and regional variations in relationships among surface form, water, vegetation, and surface materials. Man as evaluator and agent of change.  

3600 Geography of Population (4) World population pattern; regional socio-economic characteristics and demographic trends; relationship to resource base.  

3610 Political Geography (4) Importance of geographic factors for understanding political relationships within and between nations; spatial implications of political decision-making process; geography of administrative units.  

3660 Cultural Geography (4) Basic concepts of culture; methods and background of cultural geography; world patterns of cultural phenomena.  

3790 Geography of Middle America (4) Covers Mexico, Central America, and the West Indies. Not open to students who have taken 3740, 3770, or 3780.  

3800 Geography of South America (4) Not open to students who have taken 3730, 3750, or 3760.  

3810 Geography of Europe (4)  

3840 Geography of Australia and Oceania (4) Survey of major physical, economic and social characteristics of Australia, New Zealand, and of impact of western civilization on selected island groups of Southwest Pacific.  

3870 Geography of Asia (4) A survey of the physical, cultural and economic characteristics of the countries of Asia, excluding the Soviet Union. Not open to students who have taken 3820, 3890, or 3900.  

3880 Geography of the Soviet Union (4)  

3910 Regional Geography of the United States and Canada (4) Major physical, economic, and social distributions as they interrelate to give distinctive character to regions of United States and Canad. Not open to students who have taken 3710 or 3720.  

3920 Geography of the American South (4)  

3930 Geography of Tennessee (4)  

3940 Geography of Appalachia (4) Interrelation of physical, economic, and social patterns to give
5310 Advanced Regional Geography of United States (3)
5320 Advanced Regional Geography of the South (3)
5410-20 Advanced Economic Geography (3, 3)
5520 Advanced Urban Geography (3, 3)
5550 Topics in Geography of Land-Surface System (3)
5610 Topics in Climatology (3)
5710 Seminar in Geography (3)
5720 Topics in Quantitative Geography (3)
5740 Advanced Topics in Remote Sensing (3)
5915 Regional Geomorphology (4)
6000 Doctoral Research and Dissertation
6110-20 Seminar in Economic Geography (3, 3)
6220-30 Seminar in Urban Geography (3, 3)
6240-50 Seminar in Historical Geography (3, 3)
6260-70 Seminar in Cultural Geography (3, 3)
6310-20 Seminar in Rural Geography (3, 3)
6410-20 Seminar in Regional Geography of United States (3, 3)
6610-20 Seminar in Regional Geography of Latin America (3, 3)
6710-20 Seminar in Physical Geography (3, 3)

Geological Sciences

Professors:
G. Briggs (Head), Ph.D. Wisconsin; H.J. Klepser, Ph.D. Ohio State; O.C. Kopp, Ph.D. Columbia; R.E. McLauglin, Ph.D. Tennessee; D.H. Roeder, Ph.D. Goethe University (Germany); K.R. Walker, Ph.D. Yale; J.G. Wallis, Ph.D. North Carolina.

Associate Professors:
M. Clark, Ph.D. Pennsylvania State; L.A. Taylor, Ph.D. Lehigh.

Assistant Professors:
D.W. Byerly, Ph.D. Tennessee; F.B. Keller, M.Ph. Yale; K.C. Misra, Ph.D. Western Ontario; W.P. Staub, Ph.D. Iowa State.

The Department of Geology provides training for (1) those who plan careers as professional geologists in industry, federal and state surveys, education or other fields which utilize earth scientists; and, (2) those who seek a general knowledge of geology and its relationships to the other sciences, such as engineering, business, law, and other disciplines.

The major requirements set forth below are designed to provide geology majors with a broad base from which qualified students may proceed into advanced study in one or more of the branches of geology or related minor fields. Because a wide range of elective courses is available, it is essential that each student be guided in planning his program by a departmental adviser. A list of advisers is available in the departmental office.

UNDERGRADUATE

Major: Geology 1510 and 1520 or 1810 and 1820 are prerequisite to a major which consists of Geology 3160, 3260, 3360, 3370 and at least 24 hours additionally in upper-division courses in geology chosen to include at least twelve hours from among the following courses: Geology 3510, 4110, 4115, 4230, 4510 and 4610. Geology 4310 and/or 4440 (or equivalent) are strongly recommended for students planning to become professional geologists.

Because of the interdisciplinary nature of geology and the prerequisites for advanced study, students who major in geology are required to take the following allied science and mathematics courses: Biology 1210-20; Chemistry 1110-20; Mathematics 1840-50\(^1\) Physics 2210-20 or 2510 and 2310-20. It is recommended that students take additional courses beyond the elementary level in at least one of the above allied fields.

Minor: Geology 1510 and 1520 or 1810 and 1820 are prerequisite to a minor which consists of at least twenty-four hours in courses numbered 2000 or above.

Geology (424)

1000 Frontiers in Earth and Planetary Sciences (4)
Recent developments in earth science of interest to the public. Designed for non-majors; treats popular topics such as discoveries on moon by Apollo missions, earthquake prediction, and drifting of continents.

1510 Geoscience I (4) Introduction to study of the earth with emphasis upon its materials and processes which change it. 3 hrs and 1.25 hr lab or field period.

1520 Geoscience II (4) Continuation of Geoscience I emphasizing changes of the earth and its inhabitants throughout time. Prereq. 1510. 3 hrs and 1.25 hr lab or field period.

1810-20 Introductory Geology (4, 4) Introductory course sequence emphasizing geologic principles and methods of study. 1810-Earth, its materials and processes that change it. 1820-Origin and development of earth and life upon it. Designed for students with strong interest in science, course is taught by team of specialists, each representing units in his area of specialization. Laboratory and field trips provide opportunities to apply principles and methods of study to specific geologic problems. Must be taken in sequence. Students having begun 1510-20 sequence can change into 1810-20 sequence and vice versa. 3 hrs. and one 2 hr lab or field period.

2130 Geological History of the Earth (4) Origin and evolution of continents, atmosphere, oceans and earth's inhabitants with emphasis on physical history of North America. Prereq. 1520 or 1820. 3 hrs and 1 lab or field period.

2210 History of Life on Earth (4) Chronological account of origin and evolution of life, its environment, and societal patterns. Not intended for geology majors. 3 hrs and 1 lab or field period.


2610 Introductory Geology for Engineers (3) Materials and structure of the earth. For College of Engineering students only. 2 lectures and 1 lab or field period.

2710 Introductory Oceanography (4) Introduction to study of oceans including origin and development of...
of ocean basins and physical and biological processes within ocean basins and their contained water and sediment masses. 1510 or 1810 recommended. 3160 Introduction to Earth Materials (4) Introduction to earth materials, rocks and soils. Laboratory includes hand specimen and analytical methods of identification of important rock-forming and economic major and minor rock types. Prereq: 1510 or 1810. 2 lectures and 2 labs. 3180 Mineralogy (4) Classification and identification of silicate and non-silicate minerals. Minerals as phases of rock forming systems. Laboratory includes hand specimen, chemical and x-ray methods of identification. Prereq: 3160; Chemistry 1110-20 or equivalent. 2 lectures and 2 labs. 3210-20 Invertebrate Paleontology (4, 4) Systematic review of important invertebrate fossil groups. 3210—Protista to Brachiopoda, including sponges, coelenterates and bryozoa. 3220—Phoronida to Hemichordata, including annelids, molluscs, arthropods and echinoderms. May be taken separately or in any order. Prereq: 3260; Biology 1210-20 or permission of instructor. 3 hrs and 1 lab or field period. 3250 Micropaleontology (4) Microscopic remains of animals and plants with special emphasis on stratigraphic and tectonically important groups. Prereq: 3210 or permission of instructor. 3 hrs and 1 lab. 3260 Paleobiology (4) Introduction to principles and materials of paleontology as applied to interpretation of earth history. Prereq: 1520 or 1820; Biology 1210-20 or permission of instructor. 3 lectures and 1 lab or field period. 3270 Geological History of Land Organisms (4) Geological history and development of terrestrial biota and ecosystem with special emphasis on fossil record of land plants and vertebrates. Prereq: Biology 1210-20 or permission of instructor. 3 lectures and 1 lab or field period. 3290 Physical and Biological Quaternary Environment of Humans (4) Interdisciplinary interactions of physical and biological factors. Emphasis on the Quaternary environment with humanity, stressing important effects on landscapes and biota that influence humans today. 2 lectures and 1.5 hrs lab or field period. 3310 Lithology (4) Classification and properties of igneous, metamorphic and sedimentary rocks. Laboratory includes both hand specimen and microscopic study of important rock types. Prereq: 3160, 3180 strongly recommended. 2 lectures and 2 labs. 3330 Geology of East Tennessee (4) Lectures and field excursions. Prereq: 12 quarter hours of geology and permission of instructor. 3360 Stratigraphy-Sedimentation (4) Introduction to basic principles and techniques of stratigraphy and sedimentary processes and interpretation of depositional environments. Prereq: 1520 (or 1820) and 3160. 3 hrs and 1 lab or field period. 3370 Structural Geology (4) Introductory discussion of structures such as folds, faults, joints, cleavage, and primary structures. Laboratory work includes depth and thickness problems, Structure sections, structure contour maps, etc. Prereq: 1520 or 1820; Mathematics 1840-50 or equivalent. 3 hrs and 1 lab. 3410 Principles of Ground Water Geology (3) Geological materials and processes affecting the occurrence and behavior of water. Not open to geology majors. 2 lectures and 1 lab. (Same as WRI 3410.) 3510 Introductory Environmental Geology (4) Geologic problems involving earth environments and resources, and geologic parameters associated with their control and misuse. Prereq: 1520 or 1820 or permission of instructor. 2 lectures and 2 lab or field periods. 3520 Our Changing Landscapes (4) Basic introduction to study of landscape-forming processes and their interactions with earth materials to produce landscapes. Laboratory experience includes slope- and stream-aerial experiments and field experience. Not intended for geology majors. 2 hrs and 2 lab or field periods. 3610 Quaternary Geology for Engineers (3) Erosional and depositional processes, landforms, groundwater and bedrock or landform and field period. Prereq: 2610 or equivalent. 3710 Origin and Evolution of the Continents and Ocean Basins (4) Introductory study of origins and changes that have occurred in earth's crust with emphasis on modern concepts of continental drift and plate tectonics. Prereq: 1520 or 1820. 4110 Principles of Economic Geology (4) Formation of mineral deposits. Prereq: 3160; 3370 or equivalent. 4115 Elementary Applied Geophysics (4) Basic principles of electrical, seismic, gravity and magnetic surveying. Recommended: 1520, Physics 2220 or 2320. 3 lectures and 1 lab. 4130 Sedimentology (4) Prereq: 3310. 2 hrs and 2 labs. 4210 Biostatistics (4) Fossil faunas and floras and their use in geochronology, stratigraphic correlation, and paleoecology. Prereq: 3210-20. 3 hrs and 1 lab. 4230 Paleocology (4) Principles of environmental analysis as applied to fossil assemblages and associated lithologies. Prereq: 3260 or permission of instructor. 3 hrs and 1 lab. 4240 Paleobotany (4) Survey of fossil record of plants with particular emphasis on (1) comparative morphology and evolutionary trends in major plant groups and (2) chronological succession and geographic distribution of past floras on earth. Prereq: 1520 or 1820 or 2210; Botany 3010-20 or permission of instructor. 3 hrs and 1 lab or field period. (Same as Botany 4240.) 4310 Geologic Mapping (4) Interpretation of maps and methods of geometric mapping. 3 lectures and 1 lab or field period. Prereq: 12 quarter hours of mapping. 4370 Tectonic Styles (4) Elements, habitats, and geotectonic causes of basic styles of tectonic deformation are presented on maps, sections, aerial photographs and fabric diagrams. 3 lectures and 1 seminar or lab. Prereq: 3370 or permission of instructor. 4440 Field Geology (5) Five weeks' field course, first term summer quarter. Advanced undergraduates or first-year graduate students in geology. Employs entire year of students. A report is required, to be submitted no later than end of fall quarter. 12 quarter hours of geology and permission of instructor. 4480 Geologic Photography and Photogrammetry (4) Principles of terrestrial and aerial geologic photography, including photographic principles and field techniques of terrestrial and aerial photography, and image interpretation. Prereq: 3370 or permission of instructor. 3 lectures and 1 lab. 4510 Principles of Geomorphology (4) Gradational processes acting at earth's surface and landforms produced. Prereq: 1510 or 1810 or permission of instructor. 3 hrs and 1 lab. 4610 Principles of Geochemistry (4) Application of chemical principles to geologic problems. Emphasis on crystal chemistry and relation between basic atomic structure and distribution and behavior of elements in the earth's crust. Prereq: Chemistry 1110-20 or equivalent required. Recommended 3160. 4650 Mineral Phase Equilibria (3) Principles of phase chemistry and application of phase equilibria studies in rock-forming mineral systems as aid to understanding conditions of formation and modification of rocks. Prereq: 3310 or permission of instructor. 3 lectures and 1 lab. 4660 Electron Microprobe Analysis: Theory and Application (3) Techniques and applicability of electron probe in chemical analysis; emphasis on applications in the earth sciences. Prereq: 3310 or permission of instructor. 2 lectures and 1 lab.
Germanic and Slavic Languages

Professors: H. Kratz (Head), Ph.D. Ohio State; H.W. Fuller, Ph.D. Wisconsin; E.T. Hankamer (Emeritus), Ph.D. Bonn (Germany); R.L. Hillenbrand, Ph.D. Connecticut; R.L. Nordlie, Ph.D. Ohio State; J.C. Osborne, Ph.D. Northwestern.

Associate Professors: J.E. Falen, Ph.D. Pennsylvania; D.E. Lee, Ph.D. Stanford; R.D. Vanderbillet.

Assistant Professors: K.L. Black, Ph.D. Bryn Mawr; J.S. Elliott, Ph.D. Michigan; D.M. Fiere, Ph.D. Indiana; G.J. Givetcha, Ph.D. Wisconsin; N.A. Lauckner, Ph.D. Wisconsin; C.J. Metzler, Ph.D. Chicago.


'On leave.

UNDERGRADUATE

Placement Examination: Students who have had previous work in German or Russian either in high school or in another college should register for the course in which they would normally be placed. During the first week of the quarter a placement test will be given, and students will be advised if a change in registration is indicated.

Proficiency Examinations: Students who have acquired a knowledge of German or Russian through private study, tutoring, residence in foreign countries, or the like, should request a proficiency test. A student earning a grade of C or better on such a test will receive credit for a limited number of courses. Superior students are encouraged to proceed as rapidly as their achievement permits. Students who omit any course in a sequence may receive credit for it by passing a proficiency examination.

Foreign Study: Students are encouraged to study abroad. The department is prepared to recommend summer study programs and junior year abroad programs for students who are interested in foreign study. Credits from recognized foreign study programs can readily be transferred to The University of Tennessee. For qualified students, the department also offers German 4101 Foreign Study and Russian 4101 Foreign Study. See page 177. Students should consult the department before registering for the foreign study course.

German

Major: Majors or minors in German should carefully prepare their programs in consultation with a departmental faculty adviser. German 2510-20 or 2530-40 or the equivalent is a prerequisite to the major and minor. The major concentration shall consist of at least 36 hours of German in courses numbered above 3000, usually including German 3110-20-30 (or 3410-20-30), 3810-20-30, 8 hours in courses numbered above 3000, excluding 3010-20-30 and courses in English translation.

It is recommended that German majors also take History 1510-20 or 3710-20-30 and 8 hours of sophomore English. Majors are also strongly urged to consider a minor in some other area of the humanities.

German 2510-20, 2530-40 or its equivalent is a prerequisite to the minor. The minor concentration shall consist of at least 24 hours of German courses numbered above 3000, which will normally include German 3110-20-30 (or 3410-20-30), and 15 additional hours of courses numbered above 3000, excluding 3010-20-30 and courses in English translation.

Russian

Major: Russian majors should carefully prepare their programs in consultation with the departmental faculty adviser. Russian 2510-20 or its equivalent is a prerequisite to the major. Russian 2640-50 is a corequisite to the major. The major itself consists of 36 hours of Russian courses, including Russian 3510-20, 3610-20, 3510-20, 9 hours from Russian 3210-20-21-30-40-50-60, and 9 hours of courses numbered above 4000. It is recommended that majors also take History 3470-80-90 and 9 hours of sophomore English. Majors are urged to consider a minor in some other area of the humanities.

Minor: Russian 2510-20 or its equivalent is a prerequisite to the minor. The minor itself consists of 27 hours of Russian courses, including 9 hours from Russian 2640-50 and/or 3210-20-21-30-40-50-60 and 18 hours to be taken from Russian 3510-20, 3610-20-30 and courses numbered above 4000.

Russian and East European Studies: See Cultural Studies.

Certification for Teaching German and Russian in Tennessee

Consult Certification Clerk, Room 212, Claxton Education Building.

German (433)

1510-20 Elementary German (4, 4) Must be taken in sequence.

1518-2518-28 Honors: Elementary and Intermediate German (5, 5, 5) Honors courses for students of superior ability. Freshmen are admitted on the basis of high school average and performance on the American College Testing Program. Upper-classmen must have a B average. A grade of C or above must be achieved in 1518 in order to continue with 2518. A student obtaining a grade of D or better in 1518 may continue with German 1510. This sequence is equivalent to 1510-20 and 2510-20 and its completion qualifies the student to enter all 3000-level German courses.

1530 Elementary German through Individualized Instruction (1-8) Same material as in German 1510-20, but student may proceed at his own pace, with a minimum of one credit hour per quarter. With completion of four hours student has option of transferring to 1520. May be repeated. Maximum credit 8 hours.

2510-20 Intermediate German (4, 4) Must be taken in sequence. Students who have had two units of German in high school or one year in college and who wish to continue Intermediate German after some lapse of time are given the opportunity of enrolling in a five-hour per week section of German 2510-20. In this class they will have the benefit of a controlled review of the basic essentials of Elementary German.

2530-40 Intermediate German (4, 4) For students in Science-Medical curriculum or B.S. curriculum in natural science. May be repeated. For foreign language majors.

3010-20-30 Elements of German for Upper Division and Graduate Students (3, 3, 3) For graduate students preparing for language examinations and Upper Division undergraduates desiring reading knowledge of second foreign language. Prereq: Two years of some foreign language in college or permission of department. Undergraduate degree only. No credit for students having completed 1510-20.

3040 Elementary Dutch (3) Prereq: reading knowledge of German. Primarily for graduate students in German. No graduate credit allowed.

3110-20-30 Introduction to German Literature (3, 3) Prereq: 2520 or equivalent.

3410-20 Readings in Modern and Contemporary German Literature (3, 3) Prereq: 2520 or equivalent.

3610-20-30 Conversation and Composition (3, 3, 3) Prereq: 2130 or equivalent.

ADVANCED UNDERGRADUATE AND GRADUATE

4101 Foreign Study (1-16) See page 177.

4102 Off-Campus Study (1-13) See page 177.

4103 Independent Study (1-16) See page 177.

4110-30 Studies in Classical and Modern Writers (3, 3, 3) Content will be determined to receive credit with permission of department. Prereq: 9 hours of 3000 courses (exclusive of 3010-20-30, 3210-20-30, 3310) or equivalent.

4140-50 Selected Topics in German Literature from 1750 to the Present (3, 3) Prereq: 9 hrs of 3000 courses (exclusive of 3010-20-30 and 3210-20-30) or equivalent.

4160 Studies in German Authors (3) Life and works of a single outstanding German literary figure. Content varies. May be repeated for credit. Prereq: 9 hrs of 3000 courses (exclusive of 3010-20-30 and 3210-20-30).

4170 Theatrical German (1-3) Performance in one or more German plays. May be repeated for credit with permission of department. Prereq: 2520 or equivalent or consent of instructor.

4210-20-30 Studies in German Literary Types (3, 3, 3) lyrical, dramatic, narrative, poetic, epic, satirical. Prereq: 2420-21-30 or equivalent. Narrative Prose. Prereq: 9 hrs of 3000 courses (exclusive of 3010-20-30, 3210-20-30, 3310) or equivalent.

4250 Introduction to Descriptive Linguistics (3)

(2) Same as Russian, French and Spanish 4250.

4260 Introduction to Historical and Comparative Linguistics (3)

(3) Develops the concept of the Indo-European languages. Phonological and morphological change. Cultural, historical, sociological influences upon the development of language. Semantic change. Lexicography. All these topics copiously illustrated by selected examples from Indo-European languages. Prereq: 9 hrs of upper division English, or 9 hrs of upper division courses in a modern or ancient language (exclusive of German and French 3010-20-30, courses in literature in translation, and general courses in Latin and Greek requiring no knowledge of these languages), or permission of department. (Same as Russian, French and Spanish 4260.)

4270 Introduction to Germanic Linguistics (3)

Phonetics and phonemics of German, German grammar and German vocabulary from a descriptive point of view. Dialects of German. Introduction to study of other Germanic languages.

4310-20 History of German Language (3, 3)

4610-20 German Civilization (3, 3) Prereq: 2520 or equivalent.

4618-28-38 Honors: Senior German (3, 3, 3)
Intended to give student of special aptitude greater opportunity to do independent study than is possible in ordinary courses. Prereq: Senior standing, with a record of A in half of German courses taken as prerequisite to the 4000 courses, average of B in remainder, and permission of department.

4810-20-30 Advanced Conversation and Composition (3, 3, 3) Prereq: 3810-20-30 or equivalent or permission of department.

GENERAL COURSES

2640-50 Culture of German-Speaking Peoples (4, 4) Studies in culture and life-style of German-speaking peoples from their first contact with Romans to the present. Readings are in English language.

3210-20-30 German Literature in English Translation (3-4, 3-4, 3-4) No foreign language credit. No change in credit hours after add deadline. Students opting for 4 hours credit will be expected to present an appropriate amount of extra work above that requiring for 3 hours.

3280 Old Norse Literature in English Translation (3-4) Prose readings of sagas of Norwegian kings, great Icelandic family sagas, and Vinland sagas, narrating discovery of America around the year 1000. Mythological and heroic poems of the Edda.

3250 Modern Scandinavian Literature in English Translation (3) Introduction to modern literature of Sweden, Norway, Denmark, and Iceland. Representative readings by such writers as Ibsen, Strindberg, Lagerföld, Hamsun, Veesaa, Lagerkvist, Bang, Nøkleby, Laxness.

3280 German Drama in English Translation (3) From Lessing to present. No foreign language credit.

3270 Modern German Novel in English Translation (3) From 1950 to present. Remarque, Hesse, Mann, Kafka, Frisch, Böll. Grass. No foreign language credit.

3280 Goethe's Faust in English Translation (3) Intensive study of Faust I and II and survey of criticism and interpretations of the work. No foreign language credit.

3310 Dramas of Bertolt Brecht (3-4) Chronological survey of Brecht's dramatic works and theoretical writings in English translation. No foreign language credit.

3230 Novels of Hermann Hesse (3-4) Study and analysis of Hesse's major novels in English translation. No foreign language credit.

3330 Dramas of Ibsen and Strindberg (3-4) Study of two principal forerunners of twentieth-century drama. Works are read in English translation. No foreign language credit.

3340 Special Topics in German Literature in English Translation (1-4) Topics and credit hours vary and are announced in advance. Student suggestions for topics are welcome. No foreign language credit. May be repeated for credit.

4050 The Faust Legend (3) Survey of development of legend from Faust chappbook to present, excluding Goethe's Faust. No foreign language credit.

GRADUATE

The Department of Germanic and Slavic Languages offers three advanced degrees. They are: Master of Arts (M.A.) in German, Master of Arts in College Teaching (M.A.C.T.) in German, and Doctor of Philosophy (Ph.D.) in German Language and Literature. The requirements for these degrees are set forth in the Graduate School Catalog.

5000 Thesis

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5160 Introduction to German Semantics (3)

5200 Proseminar (3)

5210-20-30 College Teaching of German (1, 1, 1)

5410-20-30 Medieval German Language and Literature (3, 3, 3)

5500 Studies in German Literature (3)

5510 German Humanism and Reformation (3)

5520 German Baroque Literature (3)

5530 The Enlightenment and the Rococo (3)

5540 German Classicism (3)

5550 Goethe's Faust (3)

5560 German Romanticism (3)

5570 German Realism and Naturalism (3)

5580 Modern German Literature (1889-1945) (3)

5590 Modern German Literature (1945-Present) (3)

5600 German Literary Theory and Criticism (3)

5610-20-30-40-50-60 Directed Readings in German Language and Literature (3, 3, 3, 3, 3, 3)

5710 Introduction to Old Norse (3)

5720 Readings in Old Norse Prose (3)

5730 Readings in Old Norse Poetry (3)

6000 Doctoral Research and Dissertation

6100 Gothic (3)

6120-30 Old High German (3, 3)

6140 Old Saxon (3)

6210-20-30-40-50-60 Seminar in German Literature (3, 3, 3, 3, 3, 3)

6310-20-30 Seminar in German and Germanic Philology (3, 3, 3)

Russian (886)

1510-20 Elementary Russian (4, 4) Must be taken in sequence.

1610-20 Elementary Serbo-Croatian (4, 4) Must be taken in sequence.

1710-20 Elementary Czech (4, 4) Must be taken in sequence.

2510-20 Intermediate Russian (4, 4) Must be taken in sequence.

2670-80 Intermediate Serbo-Croatian (4, 4) Must be taken in sequence.

2710-20 Intermediate Czech (4, 4) Must be taken in sequence.

3010-20-30 Elements of Russian for Graduate Students and Seniors (3, 3, 3) For graduate students preparing for language examinations and seniors desiring reading knowledge of a second foreign language. Prereq: 2 yrs of some foreign language in college or permission of department. Undergrad credit only. No credit for students having completed 1510-20 or equivalent.

3510-20 Russian Composition and Conversation (4, 4) Practice in writing and speaking; grammar review and vocabulary building.

3610-20-30 Introduction to Russian Literature (3, 3, 3) 3610: Russian Poetry. 3620: Russian Short Stories. 3630: Russian Short Novels. Prereq: Completion of Russian 3510-20 or equivalent.

ADVANCED UNDERGRADUATE AND GRADUATE

4010 Selected Topics in Russian and East European Studies (3) Interdisciplinary seminar on selected topic using comparative approach.

4101 Foreign Study (1-16) See page 177.

4102 Off-Campus Study (1-16) See page 177.

4103 Independent Study (1-16) See page 177.

4110-20-30 Studies in Major Russian Writers (3, 3, 3) Content varies. Pushkin, Lermontov, Gogol, Turgeniev, Tolstoy, Dostoevsky, Chekhov, others. Prereq: 9 hrs of 3000 courses (exclusive of 3010-20-30, 3210-20-30-40-50-60-70, 3310) or equivalent. May be repeated for credit.


4250 Introduction to Descriptive Linguistics (3) (Same as German, French and Spanish 4250.)

4260 Introduction to Historical and Comparative Linguistics (3) (Same as German, French and Spanish 4260.)

4270 Introduction to Slavic Linguistics (3)

4310-20 Advanced Studies in Russian Language (3, 3, 3) Intended primarily for students majoring or minoring in Russian who are interested in language and linguistics. Includes problems in morphology and syntax, stylistics and translation techniques and history of Russian language as well as other special problems for advanced students of Russian.

4410-20-30 Directed Readings in Russian (3, 3, 3) Intended primarily for students participating in program in Russian and East European Area Studies, course will involve individual study relating to student's major field. Prereq: 9 hours of 3000 level courses in Russian (exclusive of 3010-20-30, 3210-20-30-40-50-60-70, 3310 or equivalent).

GENERAL COURSES

2640-50 Background and Main Currents of Russian Culture (4, 4) A broad interdisciplinary approach to the appreciation of the language, religion, literature, art, music, history, geography, and social problems of Russia. No knowledge of Russian required. May not be taken for foreign language credit.

3210-20-21-30 Survey of Russian Literature in English Translation (3-4, 3-4, 3-4, 3-4) 3210—Russian realism; development of nineteenth-century novel; selections from works of Pushkin, Gogol, Lermontov, Leskov, Goncharov, Chernyshyevsky, and other classic authors. 3220—Works of F.M. Dostoevsky. 3230—Twentieth-century Russian literature, on eve of revolution and under Soviets.

3240 The Russian Drama in English Translation (3-4) Selections from works of Fyodor, Gribboedov, Pushkin, Gogol, Ostrovsky, Turgeniev, Chekhov, and others.

3250 The Works of Ivan Turgeniev and Anton Chekhov in English Translation (3-4)

3260 Russian Folklore in English Translation (3-4)

3270 Russian Philosophical and Theological Thought (4) A survey of the development of philosophical and theological thought in Russia from the Middle Ages to the Revolution. Special emphasis on the expression of this thought in Russian literature and literary criticism. No knowledge of Russian required. (Same as Philosophy 3270 and Religious Studies 3270.)

Greek

See Classics.

Greek and Roman Civilization

See Cultural Studies.

Hebrew

See Religious Studies.
1610-20 A History of World Civilization Since 1450 (4, 4) Interaction of Western World and Non-Western Societies: the sixteenth century. 1610—ca. 1450-1800. 1620—1800 to present.


2300 U.S. and World Crisis, 1889 to Present (4) An introduction to the course in history of 20th-century American Foreign Relations. May not satisfy major or minor requirements.

2510-20 History of the United States (4, 4) 2510—Settlement to 1865. 2520—1865 to present.

2511-21 Readings in United States History (1, 1) Directed readings in aspects of the national past. For students who have not yet met Tennessee Legislature requirements in American history, and for transfers who enter Liberal Arts with credits, but fewer than eight, in an American history sequence. 2511—Settlement to 1865. 2521—1865 to present. Prereq: permission of department. Coreq: 2510 for 2511, 2520 for 2521.

2518-28 Honors: History of the United States (4, 4) Consent of department required.

3008 Honors: Introduction to Historical Analysis and Interpretation (3) Required of students seeking honors in history.

3038 Honors: Philosophy and Method (3) Principles and techniques of research and study of critical and speculative philosophy of history. Required of students working toward honors in history. Admission with permission of department.

3048: Honors: Readings (3) Required of and open only to students working for honors in history.

3061-71 History of Western Religious Thought and Institutions (4, 4) Same as Religious Studies 3061-71.

3140-50-60 History of England (3, 3, 3) 3140—To 1688. 3150—1688 through Reform Bill of 1682. 3160—1832 to present.

3311-21 History of Tennessee (3, 3) 3311—18th century to Civil War Era. 3321—1865 to present.

3411-12-13 Renaissance and Reformation (3, 3, 3) 3411—Reformation. 3412—Reformation. 1517-1550. 3413—Catholic Reformation and Wars of Religion. (Same as Religious Studies 3411-12-13).

3421-22-23 Early Modern Europe 1600-1815 (3, 3, 3) 3421—Seventeenth Century Europe. 3422—Ancient Regime. 3423—French Revolution and Napoleon.


3446-45 History of France (4, 4) 3445—France to 1875. 3446—France since 1871.

3470-80-90 History of Russia (3, 3, 3) 3470—To 1801. 3480—19th Century. 3490—20th Century.


3670 Popular Culture in the United States (4) Examination of significance of fads, fashions, and amusements of American public from Colonial period through the twentieth century. Not for graduate credit.

3680 Indian-White Relations in United States History (4) White man's relationship with the Indian since Colonial times. Emphasis on dilemma of two cultures existing side by side; background and formulation of official Indian policy; understanding of policy by frontier circumstances; Indian wars and campaigns; and present-day relationships. Not for graduate credit.

3710-20-30 History of Germany (3, 3, 3) 3710—First Reich, 1713-1871. 3720—Habsburgs and Hohenzollerns and Formation of Second Reich, 1713-1890. 3730—From a Unified to a Divided Germany, 1890 to present.

3751 Ancient Near Eastern Civilization (3) Early and Middle Bronze Ages.

3752 Ancient Near Eastern Civilization (3) Late Bronze and Iron Ages.

3760-70 The Ancient World (3, 3) 3760-Greece. 3770-Rome.

3780-90 History of the Middle East (3, 3) 3780—Rise and spread of Islamic Civilization to the 16th century. 3790—The Impact of the West on the Middle East from the 16th century to World War I.

3795 Contemporary Middle East (4) Background of current problems in the area, from World War I to present. (Same as Political Science 3795.)

3810-20-30 History of East Asia (3, 3, 3) 3810—Traditional China and Japan, ancient to mid-nineteenth century. 3820—Modern China, Japan, and Korea, mid-nineteenth century to 1920's. 3830—Contemporary China, Japan, and Korea, 1920's to present.

3870-80-90 History of Latin America (3, 3, 3) 3870—Exploration, conquest, settlement, and colonial life to 1800. 3880—Major countries of South America, 1800-present. 3890—Mexico, Central America, and the Caribbean, 1800-present.


4010-11-12 History Colloquium (3, 3, 3) 4010—General. 4011—European. 4012—American. Small group study of selected historical period or theme. Recommended that students have previously taken appropriate lower-division historical sequence.

4015 Studies in History (3-4) Variable content course affording opportunity to offer subject matter not covered in an existing course. May be repeated for credit.

4018-28 Honors: Senior Paper (0, 6) Required of students working for honors in history.

4101 Foreign Study (1-16) See page 177.

4102 Off-Campus Study (1-16) See page 177.

4103 Independent Study (1-16) See page 177.

4120-30 History of Colonialism and Imperialism (3, 3) 4120—Background: Age of Discovery and Exploration to Nineteenth Century. 4130—Nineteenth Century to Present.


4260 Women in European History (4) Comparative analysis of role and image of women in Medieval, Renaissance, and Victorian periods. Attention given to parallel changes in structure of family as well as relationship between Western culture and women's protest movements.

4290 Women in American History (4) Approaches of 4280 applied to American society.

4311-21 History of American Foreign Relations I, II (4, 4) 4311—Revolution to 1912. 4321—1912 to present.

4370 U.S. Military History, 1754 to the Present (4) Examination of nation's broad strategic aims and means used to attain them, shifting strategy, tactics, and weaponry involved in our wars, and relationship between American society and its armed forces.
Arts and Master of Arts in College Teaching degrees are found in the Graduate School Catalog.

The Doctoral Program
General requirements for the Doctor's degree are found in the Graduate School Catalog.

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5015 Periods in European History (3)

5016 Periods in American History (3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5211-12-13-14-15-16-17-18-19 M.A. Reading Courses (3, 3, 3, 3, 3, 3, 3, 3)

5221-22-23-24-25 M.A. Reading Courses (3, 3, 3, 3, 3)

5240 Introduction to Historical Research (3)

5250 European Historiography (3)

5260 American Historiography (3)

5271-72-73 Teaching of College History (0, 0, 3)

5280 Philosophy and Methodology (3)

5290 Quantitative Analysis of Historical Data (3)

5300 Topics in History (3)

5310 Topics in Women's History (3)

5360 Topics in American Foreign Relations (3)

5410 Topics in Early Modern European History (3)

5440 Revolution and Restoration in Central Europe, 1780-1850 (3)

5444 Topics in French History (3)

5445 Topics in Nineteenth-Century European History (3)

5450 Topics in Twentieth-Century European History (3)

5480 Topics in Russian History (3)

5510 Topics in Tudor-Stuart England (3)

5520 Topics in Modern English History (3)

5550 Reaction and Reform in England, 1789-1848 (3)

5560 Anglo-Irish Relations (3)

5640 Topics in American Social and Cultural History (3)

5645 Topics in American Urban History (3)

5650 Topics in American Westward Movement (3)

5660 Topics in Negro History (3)

5670 Topics in American Colonial History (3)

5675 Topics in the Early National Period of American History (3)

5680 Topics in Nineteenth-Century American History (3)

5890 Topics in Twentieth-Century American History (3)

5710 History of the Crusades (3)

5720 Topics in Medieval History (3)

5740 Topics in European Urban History (4)

5750 Topics in Ancient History (3)

5780 Topics in German National Socialism (3)

5790 Topics in Middle Eastern History (3)

5810 Topics in Andean History (3)

5820 Topics in Mexican History (3)

5850 Topics in Chinese History (3)

5860 Topics in Japanese History (3)

5910-20 Topics in Southern History (3)

6000 Doctoral Research and Dissertation

6210-20-30-40 Directed Readings (3, 3, 3, 3)

6300 Seminar in Special Studies (3)

6310 Seminar in Tennessee History (3)

6350 Seminar in American Diplomatic History (3)

6410-20 Seminar in Western Europe (3, 3)

6444 Seminar in French History (3)

6480 Seminar in Russian History (3)

6510 Seminar in English History (3)

6610 Seminar in American Colonial History (3)

6620 Seminar in Era of American Revolution (3)

6630 Seminar in Early National Period of American History (3)

6635 Seminar in Jacksonian Period (3)

6640 Seminar in Social and Cultural History of the United States (3)

6650 Seminar in American Westward Movement (3)

6710 Seminar in Medieval Institutions (3)

6740 Seminar in the Crusades (3)

6770 Seminar in Central European History (3)

6810 Seminar in Latin American History (3)

6910 Seminar in the Civil War Era (3)

6930 Seminar in Twentieth-Century America (3)

6940 Seminar in History of the South (3)

6960 Seminar in Negro History (3)

Honor Programs (509)

Director: Dr. Harry Jacobson

Non-Departmental
The following courses are restricted to students who have been selected to participate. 1118-28-38 are for first year students invited on the basis of test scores, high school averages, and where appropriate, on University performance. Participation in the 2000, 3000, and 4000 level courses is based on cumulative averages. At present students with an average of 3.25 or greater are eligible.

1118-28-38 Honors: First Year-Inquiry and Modes of Thought (2-4, 2-4, 2-4) 1118—The Humanities; 1128—The Natural Sciences; 1138—the Social Sciences. May be repeated.

2118-28-38 Honors: Sophomore—Special Problems Seminar (2-4, 2-4, 2-4) 2118—The Humanities; 2128—The Natural Sciences; 2138—The Social Sciences. These seminars focus on selected problems in the respective disciplines. The specific topics will vary from year to year. May be repeated.

3118-28-38 Honors: Junior—Colloquium (2-4, 2-4, 2-4) Small group studies of selected topics. May be repeated.
Students enrolled in the College of Liberal Arts prior to fall quarter, 1972, who are under the previous curricular requirements will find requirements for a major in the 1972-73 or earlier general catalog.

2690 Introduction to Human Services (4) General field of human services with focus on related societal values; contemporary issues in human services.

3100 Social Welfare as a Social Institution (4) Specific social welfare institutions examined in depth in relation to human needs, structure, program, and service approaches. 2690 recommended.

3200 Peoples and Problems of Appalachia (4) Course designed to provide better understanding of Appalachian peoples, by exploring their life style and institutions from contemporary human services point of view. Thesis placed on political and economic structures of region. Recommended: Anthropology 4740.

3300 Human Needs and Services (4) Consideration of basic needs of people in urban-industrial society (e.g., income, housing, medical care) and societal response to those needs in the form of voluntary and governmental organization and agency services.

4100 Deviant Behavior as a Product of Labeling (4) Course is designed to show how society's worker role he plays in maintaining the deviance or deviant role of client or clients he is serving. Settings considered will include crime, delinquency, health and blindness.

4101 Foreign Study (1-16) See page 171.

4102 Off-Campus Study (1-16) See page 171.

4103 Independent Study (1-16) See page 171.

4220 Human Services Methodologies (4) Introduction to some specific helping techniques, essential in administration and delivery of human services.

4229 Special Topics in Human Services (4) Examination of specific issues, methods, values, and trends which have implications for having practitioners, e.g., art therapy, behavior modification, counseling skills, self awareness training. Content, topics to be determined by instructor; may be repeated up to 12 credit hours.

4400 Human Services Field Work (8 or 16) Practical field experiences in appropriately organized and directed human services settings. Designed to offer the student the opportunity to learn and develop specific helping skills and to become exposed and involved in the roles and functions of social services; to provide some direct services in a supervised learning situation. For majors only. May be repeated 16 hours required. S/NC. Prerequisite: permission of instructor.

4900 Aspects of Urban Environment (4) Same as Architecture 4900, Real Estate 4900, Psychology 4900.)

Italian
See Romance Languages.

Japanese
See Cultural Studies (Asian Studies).
high school average of at least 3.00 are eligible for the honors course 1848. Prospective mathematics majors who meet these requirements are particularly encouraged to take 1540, 1550. Students who present an ACT score above 18 in mathematics may take 1540 but are advised to take Algebra Refresher, Part I, in the Workshops for Non-Credit Programs, or (equivalent elsewhere) and make at least B, or to make a passing grade in Algebra Refresher, Parts I and II, in the Workshops and Non-Credit Program (or equivalent elsewhere). Students who have taken 2 years of high school algebra and 1 year of high school geometry and who present an ACT score in mathematics of at least 26 (or those who earn a grade of B in high school algebra and geometry, and present an ACT score in mathematics of at least 24) are encouraged to omit 1540 and begin with 1550. Students who have a deficiency in algebra or geometry must make up the deficiency by taking the appropriate refresher course(s) in the Workshops and Non-Credit Programs, or (equivalent elsewhere). A student may not receive credit for both 1540 and 1550. A maximum of six hours credit may be obtained in mathematics from courses numbered below 2000.

Honors Courses: The current practice of the department is to offer honors versions (1848-58-68 and 2840-50-60) of 1840-50-60 and 2840-50-60 in sequence, fall-winter-spring, each year. In addition to these regularly offered honors courses, an honors version of 1550 may be offered in year of high school geometry and whose number has zero as the last digit may be offered in any quarter. In this case, the last digit will be changed to eight and the title will be preceded by the word "Honors," both in the bulletin and on the student's transcript. These honors courses may be offered upon the initiative of interested faculty, students, or the department head (in all cases subject to the approval of the department head).

Efficiency Examinations: Students by taking the examinations for the appropriate course(s). A major in mathematics, a student must complete the Basic Requirements and Advanced Requirements listed below:

1. Basic Requirements:
   a. 2840-50-60, or 2848-58-68, or 2540-50-60, 2610, and 2860.
   b. 3810, preferably taken during the sophomore year.

2. Advanced Requirements:
   a. 3810, 3820, mathematics courses numbered 3050 or above, including a senior seminar (4910 or 4920) and at least two of the following sequences:

   b. Note: The two sequences selected cannot contain the same course.
   c. 9 additional hours in courses numbered above 3450.

Honors Program:
An Honors Program in mathematics will consist of at least 27 hours of mathematics courses numbered 4000 or above, including at least 8 hours of honors courses (those whose number ends in 8). Students who satisfy the major requirements (categories 1 and 2 above) and complete the Honors Program with a grade point average of at least 3.4, 3.6, or 3.8 will be graduated with Honors, High Honors, or Highest Honors in mathematics respectively.

In exceptional cases, other courses of similar level may be accepted in place of the six hours of honors courses.

A student who wishes to be considered under the Honors Program will apply with the prerequisite course (in the spring, if graduation is to be in December). The application will list the 27 hours to be offered, including the honors courses or their proposed substitutes. Students taking more than 27 hours of non-elective courses may select those to be listed. A note of successful completion will be added to the student's transcript.

Students interested in planning an Honors Program should consult their advisors as early as possible.

Minor: Consists of 2840-50-60, of 2848-58-68, or 2540-50-60, 2610 and 2860) and at least 12 hours in courses numbered 3050 or above.

Program Planning for Majors:
Mathematics majors have considerable freedom in determining how they will meet the Advanced Requirements of the major. In order to offer a variety of programs in program planning, the mathematics department has designed several sample programs which majors may wish to follow. A brief description of these programs appears below: more detailed information about these or any additional programs which the department may design in the future is available in Ayres 121. Completion of the courses suggested in any of the following programs will meet (and, in some cases exceed) the Advanced Requirements for a major in mathematics.

All students who intend to pursue graduate studies in the mathematical sciences are strongly urged to study French, German, or Russian for at least two years.

Program 1. This program is designed for students who have a general interest in mathematics and do not plan to become professional mathematicians. Supplemented by appropriate non-mathematical electives, such a program will be useful to students for example, by pre-medical or pre-law students, by students planning to teach secondary school mathematics, or by those who plan to enter business after graduation. Suggested courses: Mathematics 3150, 3505-60, 3780-90, 3930, 4150-20, 4120, senior seminar, 6 hours of math electives.

Program 2. This program emphasizes pure mathematics and is designed to prepare students for graduate work in any of the mathematical sciences. Suggested courses: Mathematics 3150, 3920-30, 4150-20-30, 4120, 4150-60, 4250, senior seminar, 3 hours of math electives. The honors courses 4518-28-38 and 4518-68 are especially recommended. Since 4518-68 begins only in the fall quarter, students who wish to enroll in this sequence should take 4120 during their sophomore or junior years.

Program 3-A. This program emphasizes numerical mathematics, and is designed to prepare the student for employment in industry. Suggested courses: Mathematics 3150, 4220-30, 4160, 4060-70, 4250, Computer Science 4410, Mathematics 4990 or Computer Science 4330, senior seminar, 8 hours of math electives selected from 4540, 4550, 4620, 4640, 4710.

Program 3-B. This program emphasizes numerical mathematics and is designed to prepare the student for graduate work in numerical mathematics or computer science. Suggested courses: Mathematics 3150, 4220-30, 4160, 4060-70, 4150-20-30, 4250, Computer Science 4410, Mathematics 4990 or Computer Science 4330, senior seminar, 3 hours of math electives.

Program 4-A. This program emphasizes operations research, probability, and mathematical statistics and is designed to prepare the student for employment in business or industry. Suggested courses: Mathematics 3150, 4540, 4600-70, 4650-60-70, 4750-60-70, Statistics 3450, Industrial Engineering 3510-20-30, senior seminar, 3 hours of math electives.

Program 4-B. This program emphasizes operations research, probability, and mathematical statistics, and is designed to prepare the student for graduate work in one or more of these areas. Suggested courses: Mathematics 3150, 4540, 4600-70, 4650-60-70, 4750-60-70, Industrial Engineering 3510-20-30, senior seminar.

Program 5. This program prepares actuarial science and is designed to prepare students for employment or graduate work in actuarial sciences. Suggested courses: Mathematics 3155, 4225-35, 4120, 3780-90, 4650-60-70, senior seminar and two courses from 4750-60-70, 4060-70, Computer Science 3510, 3520, 4550.

Students following this program should supplement their mathematical training by taking electives such as Economics 2110-20-30 or 2118-28-38; Accounting 2110-30; Insurance 3220, 4710-20; Marketing 3110; Statistics 3450, Industrial Engineering 3510-20-30; Computer Science 3510, 3520, 4550. Students in this program should also plan to take the Society of Actuaries Examinations I and II.

1010 Trigonometry (0) Plane trigonometry with emphasis on identities and other analytic aspects used in calculus. For students who enter with deficiency in high school trigonometry. 3 hrs per week no college credit.

1020 Mathematics: A Philosophical Approach (4)
Mathematics as a science, art and "language game"; nature of mathematical truth; strengths and limitations of the axiomatic method; the infinite and the infinitesimal: creativity, ethics; problems facing the mathematician-scientist.

1540 College Algebra (4) Sets, real and complex number systems, exponents and radicals, fundamental algebraic operations, theory of equations, polynomial functions, systems, graphs. Prereq: Two years of high school algebra or one year algebra and one year of geometry.

1550-50 Introductory Calculus-General Mathematics (4) Straight line, plane curves, conic derivatives of algebraic functions, applications of derivatives, maxima and minima, related rates, antiderivatives, integration of algebraic functions, applications of integration. Prereq: 1540 or equivalent. 1550—determinants, matrices, systems of linear equations and inequalities, Cramer's Rule, linear programming, trigonometric functions, applications, arithmetic and geometric series, simple and compound interest, annuities, exponential and logarithmic functions, law of growth, applications. Prereq: 1550 or equivalent.

Note: Students with an adequate high school background in Algebra are advised to begin the 1540-50 sequence with 1550.

1630 Analytic Geometry (5) Straight line; plane curves, polar coordinates; parametric equations, line and plane in three dimensions; review of trigonometry. Prereq: Prepare students for calculus. 2110-20 and 30-3 can not be taken for credit in addition to 1810-20. Prereq: Two years of high school algebra and one semester of trigonometry or equivalent.

1700 Precalculus Math (4) Function concept and use of functional notation. Properties of functions and their graphs. Polynomial, exponential, logarithmic, and trigonometric functions. Prereq: 2 years of high school algebra; and equivalent of one-half yr trigonometry or taking Mathematics 0150 concurrence.

1840-50-60 Single Variable Calculus (4, 4, 4) Functions, graphs, slope of a curve, definition of a derivative, limits, derivatives of algebraic functions, implicit differentiation, chain rule, differentials, continuity, applications of derivatives, maxima and minima. Indeterminate integral, area, definition of definite integral, Fundamental Theorem of calculus, application of the definite integral, logarithmic, exponential, and trigonometric functions and their derivatives in integration, plane analytic geometry, polar coordinates. Must be taken in sequence. Prereq: Two years of high school algebra and one semester of trigonometry or equivalent.

1842-52-82 Single Variable Calculus with Computer Support (5, 5, 5) Same coverage of calculus as 1840-50-60 Single Variable Calculus. Programming language FORTRAN is introduced and applied to problems from following areas: computer evaluation of functions, limit operation, application of definition of derivative; approximation via differentials; approximate solution of equations by bisection, secant methods and Newton's method; rectangular, trapezoidal, and Simpson's rules for numerical integration; Euler's method for initial value problems. Prereq: Two years of high school algebra, one year geometry, and one semester of trigonometry or equivalent.

1848-58-88 Honors: Single Variable Calculus (4, 4, 4) For students who have had trigonometry, selected on basis of placement test scores and high school record. Students receiving a grade of B or better in the course will be awarded 4 credits in calculus by taking 1850-60. Special sections of 1858 will be made available for students who perform well in 1848-50. Prereq: Be taken in sequence.

1900 Selected Topics (4) Applications of definite integration; approximate integration; simultaneous linear equations; matrix inversion; elementary linear programing. Prereq: 2 years of high school algebra, one year geometry, and one semester of trigonometry or equivalent.

2012 Basic Concepts of Elementary Mathematics (4) Sets, theory of arithmetical operations, elementary probability and statistics. Basic geometrical concepts, measurement, mensuration, applications. May not be taken for credit after or concurrently with 1110-1500, 1540, 1550, 1630, 1810, 1818, 1844, 2110, 2540, 2710. Primarily for secondary education students.

2020 Great Ideas in Mathematics (4) Course for nonscience majors designed to expose the student to ideas which have had a significant impact on direction of modern mathematics, and which might be applied on civilization in general. Selected topics may include: mathematics as a logical reasoning; Irrational numbers; Descartes and coordinate geometry; Newton and Leibniz and the development of calculus; non-Euclidean geometry; and the infinite. Prereq: High school algebra and geometry and an interest in cultural mathematics.

2110-20-30 Structure of the Number System (3, 3, 3) 2110—Set theory, whole numbers, integers. 2120—Inverses, order properties, rational numbers. 2130—Elementary number theory, rational and irrational numbers. Euclidean geometry. Must be taken in sequence. Prereq: 1 yr high school algebra and at least sophomore standing in Elementary Education, College of Education, or consent of instructor.

2412-22 Finite Mathematics (4, 4, 4) Log and sets, combinatorics and probability, vectors and matrices, linear programming and game theory: applications to simple problems in the behavioral and/or managerial sciences. Prereq: Two years of high school algebra or one year of algebra and one year geometry.

2512 Calculus Refresher (4) Functions, graphs, limits, derivatives, mean value theorem, integration and properties of definite integrals who have had some previous exposure to Differential and Integral Calculus. Prereq: 1130 or 1560 or equivalent and permission of instructor.

2540-50-60 Calculus (4, 4, 4) Course sequence for students who have completed 1560 or students who have a significant introduction to calculus in high school. Definition of a derivative; derivatives of algebraic functions, the chain rule, differentials, continuity; applications of derivatives; Rolle's Theorem, the Mean Value Theorem, maxima and minima; indefinite integrals and applications, the definite integral and applications, Fundamental Theorem of Integral Calculus. Derivatives and integrals of transcendental functions, methods of integration, parametric equations, vectors, differentiation of vectors, scalar and vector products, equations of lines and planes, surfaces. Partial differentiation, directional derivatives, the chain rule, partial derivatives and minima and maxima, equations of lines and planes, surfaces. Exact differentials, multiple integrals with applications, cylindrical and spherical coordinates; tests for convergence, power series, Taylor's series. Must be taken in sequence. Prereq: Math 1560 or at least one semester of high school calculus.

2610 Introduction to Differential Equations (2) Variables, separable, homogeneous, exact, and linear first order equations, integrating factors. Second order linear equations with constant coefficients. Prereq: 1830. 1810 or one year of high school algebra, one year geometry, and one semester of trigonometry or equivalent.

2710-20-30 Calculus (5, 5, 5) For students who have had a separate course in analytic geometry. 2710—Functions, graphs, limits, derivatives of algebraic functions, applications, antiderivatives, 2720—Definite integrals, applications, polar coordinates, transcendental functions, methods of integration, parametric equations, functions in 2-space, vectors, vector products, 2730—Elementary linear algebra, vectors in 3-space, applications, partial differentiation, multiple integrals and power series. Must be taken in sequence. Prereq: 1630 or equivalent.


Prerequisites: If specific courses are listed below, the student preparation satisfactory to the instructor will be an acceptable substitute. Graduate standing is prerequisite to enrollment in courses numbered above 6000. Undergraduates working towards a major in mathematics with a view to taking advanced work are strongly recommended to include 4510-20-30 and 4150-60-70 during the junior or senior year.

3000 Elementary Quantitative Methods (4) Elementary course designed to prepare students in social and life sciences for quantitative courses in their department. Treats basic topics in probability and statistics with an emphasis on developing the student's ability to use mathematical concepts. Prereq: One year of high school algebra. May not be taken for credit by any student who has previously received credit for any college level calculus course.

3050 Elementary Probability and Statistical Analy- sis (3) Combinatorial problems; sample spaces, sets, and events; statistical independence; axiomatic probability theory; random variables and their distributions; simple random processes. Prereq: 1550-60 or equivalent.

3060 Elementary Statistical Analysis (3) Elementary probability distributions; sampling theory; confidence intervals and statistical tests of hypotheses; least squares and linear regression. Prereq: 3050 or permission of instructor.

3090 Polynomials and Rings (3) Elementary introduction to modern abstract algebra. Axiomatic approach to polynomials and rings; elementary theory of equations in rings of integers and of polynomials with coefficients from various fields. Prereq: 2860 or permission of instructor.

3100 Logic and Sets (3) Elements of mathematical logic, set theory, relations. Prereq: Students in the College of Education. Prereq: 1 year of college mathematics.

3110 Real Number System (3) Laws of arithmetic; rational and irrational numbers; fields. Primarily for students in the College of Education. Prereq: 1 year of college mathematics.

3155 Introduction to Numerical Algorithms and Programming (3) (Same as Computer Science 3155).

3155 Introduction to Numerical Algorithms (3) (Same as Computer Science 3155).

3220 History of Mathematics (3) Survey of development of various branches of mathematics, from ancient to modern times. Not acceptable for satisfying requirements on a minor or major in mathematics. Prereq: Math 1860 or 2550 or equivalent.

3310 Advanced Euclidean Geometry (3) Triangles and circles, constructions, modern concepts. Prereq: 1 year of college mathematics.

3320 Non-Euclidean Geometry (3) Foundations of
geometry. Elliptic and hyperbolic plane geometry. Prereq: 1 year of college mathematics.


3510 Intermediate Analysis (3) Primarily for students in secondary mathematics education. Course covers elements of analysis from an advanced viewpoint with emphasis on proofs of basic theorems. Topics covered include limits of sequences of real numbers, continuity, derivatives, definite integral, and fundamental theorem of integral calculus. Prereq: 1550-60 or 1890.

3715 Discrete Structures (3) (Same as Computer Science 3715.)


3780-90 Introduction to Combinatorial Theory (3, 3) Introduction to elementary combinatorial theory and selection and within discrete systems. Enumeration by recurrence relations and generating functions, graph theory, Combinatorial geometries and finite fields, partitions, block designs. Prereq: Math 2860 or permission of instructor.

3810 How to Prove It (3) Course is designed to improve understanding of nature and methods of mathematical proof by means of practice and participation in seminar setting. Variable content but will include certain standard topics such as elementary set theory, relations, and functions, and mathematical induction. Coreq: 2850 or 2560.

3920-30 Topology of Euclidean Spaces (4, 4) Topics will include topology of line and plane, separation properties, compactness, connectedness, completeness, continuous functions, homeomorphisms, continua, and topological invariants. Must be taken in sequence. Prereq: 2860 and 3810, or 2868.

3990 Studies in Mathematics (1-4) Credit determined at registration. May be repeated for credit with permission of department; maximum 9 hours credit. Prereq: Permission of instructor.

4035-45 Introduction to Numerical Linear Algebra (4, 3) (Same as Computer Science 4035-45.)

4050 Matrix Algebra and Applications (3) Matrices, elementary operations, systems of linear equations, vector spaces, determinants, eigenvalues and eigenvectors. A student cannot receive credit for both 4050 and 4060. Prereq: 2850 or 2560 or permission of instructor.

4060-70 Matrix Algebra and Applications (3, 3) Eigenvalues and eigenvectors, singular values and singular vectors, unitary and similarity transformations, quadratic forms, vector and matrix norms, Jordan canonical form, and related topics. Prereq: 2860 or 4050.

4101 Foreign Study (1-16) See page 171.

4102 Off-Campus Study (1-16) See page 171.


4150-60 Abstract Algebra (3, 3) Equivalence relations and partitions, properties of integers, elementary theory of groups and rings, polynomial rings, integral domains, divisibility, unique factorization domains, fields. Must be taken in sequence. Prereq: 2860 or 4050.

4225-35 Introduction to Numerical Analysis (3, 3) Interpolation and approximation, numerical differentiation and integration, roots of equations, systems of linear and nonlinear equations. Prereq: 3150 or 3155. (Same as Computer Science 4225-35.)

4250 Elementary Complex Variables (3) Complex numbers, Cauchy's theorem and formula, Taylor and Laurent series, residue calculus, applications. Prereq: 2860: one 4000-level mathematics course recommended.

4510-20 Introduction to Analysis (3, 3, 3) Real number system, functions, sequences, limits, continuity, uniform continuity, differentiation, integration. Functions of several variables, implicit function theorem. Multiple integrals, infinite series, sequences and series of functions, uniform convergence, Taylor series. Should be taken in sequence. Prereq: 2860.

4540 Infinite Series and Functions of Several Variables (3) General theory, power series and Taylor's formula, uniform convergence. Partial differentiation and maxima and minima for functions of several variables. Lagrange multipliers. Prereq: 2860.

4550 Partial Differential Equations (3) Fourier series; Fourier integral; orthogonal functions; the vibrating string; solution by series; heat flow, Bessel functions. Prereq: 2860; 4610 or 4710 recommended.

4610-20 Ordinary Differential Equations (3, 3, 3) 4610—Linear first and second order equations. Power series solutions, systems of linear differential equations, the matrix exponential. 4620—Numerical methods for ordinary differential equations. Introductory methods (Euler, Runge-Kutta) for initial value problems, multistep methods. A-stability, and two point boundary value problems. 4630—Special topics which may include existence and uniqueness, oscillation theory, Liapunov stability, singular perturbations, and asymptotic solutions. Prereq: 4610: 2860 or 4050; 4620: 4050 or 4060; and 3150 or 3155; 4630: 4610 or permission of instructor.

4640 Calculus of Finite Differences (3) Real difference equations; application to problems in engineering and physics. Prereq: or coreq: 4610.

4650-60-70 Introduction to Mathematical Statistics (3, 3, 3) Introduction to probability; discrete and continuous distributions; correlation, regression, and statistical independence; foundation of sampling theory; significance tests. Must be taken in sequence. Prereq: 2860.

4710 Vector Analysis (3) Fundamental operations, base vectors, dot and cross products, directional derivatives, divergence and curl, line and surface integrals, divergence theorem of Gauss, and Stokes theorem. Prereq: 2860.

4750-60-70 Introductory Probability Theory (3, 3, 3) 4750—Elementary combinatorial analysis, probabilities in discrete sample spaces, conditional probability and stochastic independence, binomial, Poisson, hypergeometric and normal distributions. 4760—Expectation, conditional expectation and characteristic function of random variables, infinite sequences of random variables, the weak and strong laws of large numbers, and the central limit theorem. 4770—Markov chains: limiting probabilities; steady-state and stationary distributions; Stochastic processes; Poisson, birth and death processes; Kolmogorov equations. Prereq: Math 2860-60-60.

4810 Elementary Number Theory (3) Divisibility; congruences; theorems of Fermat and Wilson, primitive roots, indices, quadratic reciprocity. Prereq: 2860 or permission of instructor.

4910 Senior Seminar (1-2) Credit determined at registration. May be repeated for credit with permission of department. Student may offer a maximum of 4 hours credit from 4910 and 4920 combined. Prereq: Senior standing.

4920 Senior Seminar (1-2) Credit determined at registration. May be repeated for credit with permission of department; student may offer a maximum of 4 hours credit from 4910 and 4920 combined. Prereq: Senior standing.

4980 Readings in Mathematics (1-3) Open to superior students with permission of department head. Independent study with faculty guidance. May be repeated. Maximum credit: 9 hours.

4990 Studies in Mathematics (1-4) Credit determined at registration. May be repeated for credit with permission of department; maximum 9 hours credit. Prereq: Recommendation of mathematics professor and consent of department.

GRADUATE

The Department of Mathematics offers four advanced degrees. In order to become a candidate for any one of these the student must first be admitted to The Graduate School. The Master of Arts and Master of Science degree programs presuppose a Bachelor's degree with a major in mathematics. The Master of Mathematics degree is intended primarily for teachers of high school mathematics. Applicants for admission to this program must take the Graduate Record Examination and must have either (a) certification for teaching secondary mathematics of (b) successful elementary or secondary school teaching experience. The Doctor of Philosophy degree program presupposes a Bachelor's or Master's degree with a strong major in mathematics. This program is intended to train professional mathematicians for a career of teaching and scholarly work in colleges and universities and for work in industry. Further details on all of these programs are in the Graduate School Catalog.

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5011 Elementary Functions from an Advanced Standpoint for Teachers (3-4)

5012 Differential Geometry for Teachers (3-4)

5013 Geometry for Teachers (3-4)

5014 Analysis for Teachers (3-4)

5015 Probability and Statistical Inference for Teachers (3-4)

5050-60-70 Mathematical Logic (3, 3, 3)

5110-20-30 Theory of Functions of Complex Variable (3, 3, 3)

5150 Foundations of Analysis (3)

5160 Foundations of Analysis (3)

5170 Foundations of Analysis (3)

5210-20-30 Theory of Functions of A Real Variable (3, 3, 3)

5240-50-60 Linear Analysis (3, 3, 3)

5270 Stability Theory and Liapunov's Direct Method (3)

5310-20-30 Introduction to Higher Geometry (3, 3, 3)

5340-50-60 Numerical Treatment of Algebraic and Transcendental Equations (3, 3, 3)

5430 Integral Equations (3)

5440 Calculus of Variations (3)

5450-60-70 Introduction to Partial Differential Equations (3, 3, 3)

5455 Finite Difference Methods for Partial Differential Equations (3, 3, 3)

5465 Mathematical Aspects of the Finite Element Method (3)

5480-90 Mathematical Programming (3, 3)
UNDERGRADUATE

Major

1. Prerequisites and corequisites
   - Chemistry 2140 and 2149 (Analytical Chemistry and Laboratory)...
   - Biology 3211-3213 and 3219-39 (Organic Chemistry and Lab)...

2. Courses in the major:
   - Biology 3110 (General Genetics)...
   - Biology 3120 (Cell Biology)...
   - Microbiology 3000 (Introduction to Microbiology)...
   - Microbiology 3009 (Introduction to Microbiology)...
   - Microbiology 4111 (Physiology of Bacteria)...

   Seventeen (17) hours from the following list of upper division courses in microbiology as follows: 3 hours from Group A, 3 hours from Group B, 4 hours from Group C, and 7 hours from any courses in Groups A, B, C, or D.

   - Group A: Hours
     - Microbiology 3061 (Pathogenic Microbiology): 3 hrs
     - Microbiology 3071 (Immunology): 3 hrs

   - Group B: Microbiology 4521 (Virology): 3 hrs
     - Microbiology 4811 (Genetics of Bacteria and Viruses): 3 hrs

   - Group C: Microbiology 3069 (Pathogenic Lab) 2 hrs
     - Microbiology 3079 (Immunology Lab) 2 hrs
     - Microbiology 4112 (Bacterial Physiology Lab) 2 hrs
     - Microbiology 4529 (Virology Lab) 2 hrs
     - Microbiology 4819 (Bacterial and Viral Genetics Lab) 2 hrs

   - Group D: Microbiology 3810 (Food Microbiology): 4 hrs
     - Microbiology 3820 (Yeasts and Molds) 4 hrs
     - Microbiology 4210 or 4220 or 4230 (Special Problems in Microbiology): 3 hrs
     - Microbiology 4310 (Taxonomy of Bacteria): 3 hrs
     - Any courses from Group D plus additional courses from groups A, B, or C
     - Any 5 hours of courses listed in Natural Science and Mathematics in the College of Liberal Arts or the College of Agriculture.

Total Hours Required: 54

Microbiology (584)

2010 Microbiology (Fundamental concepts and applications of microbiology with laboratory demonstration. Course meets needs of programs that require only a single course in microbiology. Not open to students who have taken other microbiology courses.

2110 Microbiology for Student Nurses (Introductory course offered only to student nurses in diploma program of hospitals affiliated with The University of Tennessee. Microbiological principles as they apply to nursing care of the patient, epidemiology of infection, and principles of immunity and allergy. 3 hrs and 1 lab.

2010 General Microbiology (Introductory course designed for students in School of Nursing and pre-veterinary medicine. Survey of general properties of bacteria, viruses, and fungi including study of pathogenesis, immunity, and applied bacteriology. Laboratory exercises designed to parallel lecture course. 3 hrs and 2 labs.

3000 Introduction to Microbiology (3) Eucaryotic and procaryotic protists, viruses, microbial growth, bacterial structure, bacterial and viral genetics, pathogenesis, immunity and applied microbiology. Prereq: Chemistry 1110-20-30, Biology 3120. Prereq or coreq: Biology 3110.

3009 Introductory Microbiology Laboratory (2) Laboratory exercises designed to accompany 3000.

3061 Pathogenic Microbiology (3) Disease producing microorganisms including bacteria, rickettsia, chlamydia, and fungi. Prereq: 3000 and 3009.

3069 Pathogenic Microbiology Laboratory (2) Techniques for isolation, cultivation, and identification of pathogenetic microorganisms. Prereq or coreq: 3061.

3071 Immunology (3) Basic principles and mechanisms involved in resistance to infectious disease; allergy and anaphylaxis. Open to graduate students in other biological sciences without prerequisite. Prereq: 3000 and 3009 or permission of instructor.

3079 Immunology Laboratory (2) Laboratory procedures involving several species of animals, and techniques used in immunology research. Prereq or coreq: 3071.

3089 Serological Methods (3) Practical procedures in Serology and Clinical Immunology. Prereq or Coreq: 3971.

3810 Food Bacteriology (Standard methods for examination, cultivation, and identification of bacteria associated with food fermentation and food spoilage. Prereq: 2010 and Chemistry 2230 or 3211. 2 hrs and 2 labs.

3820 Yeasts and Molds (4) Morphology, taxonomy, and physiology of yeasts, actinomycetes, and fungi of industrial importance. Prereq: 3010 and Chemistry 2230 or 3211, or permission of instructor. 2 hrs and 2 labs.

4010 Biology of Soil Microorganisms (4) (Same as Agricultural Biology 4010.)

4101 Foreign Study (1-6) See page 171. No more than 3 hours may be applied toward a major or minor in microbiology. May be repeated to a total of 16 hours.

4102 Off-Campus Study (1-6) See page 171. No more than 3 hours may be applied toward a major or minor in microbiology. May be repeated to a total of 16 hours.

4103 Independent Study (1-6) See page 171. No more than 3 hours may be applied toward a major or minor in microbiology. May be repeated to a total of 16 hours.

4111 Physiology of Bacteria (3) Cell chemistry and structure, growth, nutrition, and metabolism of microorganisms. Prereq: 3000, 3009, and 12 hrs of organic chemistry.

4112 Bacterial Physiology Laboratory (2) Prereq or coreq: 4111.

4130 Taxonomy of Bacteria (3) Bacterial classification. Prereq: 3000 and 3009. 3 hrs.

4200 Special Problems in Microbiology (2-4) Individual study. Involvement in the research program of a faculty member, independent study projects. Project is undertaken under direction of faculty member with approval of department. Not more than 3 credit hours in this sequence may be used towards a major in microbiology.

4444 Seminar in Microbiology (1) May not be applied towards a major in microbiology. Prereq: senior standing, permission of instructor. Satisfactory/No Credit.

4521 Virology (3) Spectrum of bacterial, animal, and plant viruses with special emphasis on a comparison of infectious cycles and molecular concepts of replication. Prereq: 3000 and 3009 and Biochemistry 4110-20 or permission of instructor.

4529 Virology Laboratory (2) Laboratory procedures for isolation, handling, and culturing of both animal and bacterial viruses. Methodology for control of viral disease. Prereq: 4521 or coreq: 4521.

4811 Genetics of Bacteria and Viruses (3) Analysis of genetic systems in bacteria and viruses.
Mechanism and expression of mutation, recombination and genetic transfer. Preq: 3000 and 3029.

4819 Bacterial and Viral Genetics Laboratory (2) Laboratory exercises designed to accompany 4811. Coreq: 4811, or preq: General Genetics.

4820 Medical Mycology (2) Disease causing fungi, cytopathology, physiology, pathogenesis and immunity; emphasis on methodology of isolation and identification. Preq: 3000, 3009, and 3820 or permission of instructor.

4829 Medical Mycology Laboratory (2) Preq or coreq: 4820.

490 Microbial Ecology (3) Application of ecological principles to study of microbial communities. Emphasis on functional role of microorganisms in natural environments. Preq: 3000, one year organic chemistry, Biology 3130, or permission of instructor.

GRADUATE
5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5011-12-13-14-15-16 Mini-course in Microbiology (1, 1, 1, 1, 1, 1)

5130 Topics in Taxonomy (3)

5310 Selected Topics in Microbiological Research (3)

5360 Topics in Immunology and Immunochernistry (4)

5400 Seminar in Microbiological Physiology (1)

5410 Seminar in Immunology (1)

5441-42-43-44-45-46 Clinical Microbiology (6, 6, 6, 6, 6, 6)

5510-20-30 Research Problems (3, 3, 3)

5720 Microbiological Physiology (3)

5730 Pathogenesis of Infectious Disease (3)

5750 The Oncogenic Viruses (3)

5760 The Bacterial Viruses (3)

5819 Molecular Genetics Laboratory (3)

5820 Microbiology of Foods (3)

5829 Experimental Microbial Ecology (3)

5830 Seminar in History of Microbiology (1)

5850 Seminar in History of Microbiology (1)

5910-20-30 General Seminar (1, 1, 1)

5940 Seminar in Microbial Genetics (1)

5970 Seminar in Virology (1)

6000 Doctoral Research and Dissertation

6410 Concepts of Immunity (3)

6720 Advanced Topics in Microbial Physiology (3)

6730 Advanced Topics in Microbial Pathogenesis (3)

6740 Advances in Virology (3)

6760 Advanced Topics in Microbial Genetics (3)

6810-20-30 Problem Seminar (1, 1, 1)

Medical Technology (669)

Courses listed below are open only to qualified students who have completed the first three years of the Science-Medical Technology Curriculum, described on page 171, and who have been approved by the Pre-Medical Advisory Committee.

4011-12 Microbiology (6, 6) Laboratory work in bacteriology, mycology, and parasitology. Emphasis on pathogenic bacteria and fungi, their identification, techniques of culture, methods of identification, and evaluation of antibiotic sensitivity. Gross and qualitative chemical and immunological examinations. Koch's postulates and identification of protozoa and heimithrix parasites of man.

4021-22 Clinical Chemistry (6, 6) Clinical aspects of biochemistry, including overview of principles and instrumentation with emphasis on practical laboratory aspects of analytical procedures, specimen collection and handling, significance of results, and quality assurance. Includes blood gas analysis, including radiomethods, and analysis of blood and other body fluids for enzymes, hormones, and other constituents of clinical interest, utilizing both automated and manual techniques.

4031-32 Hematology and Clinical Microscopy (6, 6) Principles, theories, techniques, and instrumentation related to the qualitative and quantitative evaluation of cellular elements of blood and other body fluids; factors of hemostasis, quantitative chemical analysis of urine and renal function studies. Emphasis is placed on microscopic identification of cells and the significance and correlation of laboratory data.

4041-42 Immunohematology (4, 4) Theory and practice in blood bank operation. Erythrocyte antigens and their normal and abnormal immunology. Standard technical practices used in evaluating blood typing, cross-matching, and antibody detection, and preparation of blood components for transfusion. Safety control methods standard to an efficient blood bank are an important part of course material.

4043 Clinical Serology and Immunology (2) Performance and interpretation of broad range of clinical serological and immunological procedures with emphasis on principles and clinical correlation. Formal lecture series included.

4050 Nuclear Medicine (1) Physical characteristics, detection and use of short half-life radioactive materials. Emphasis placed on in vivo diagnostic medical uses and radiation safety.

4060 Histology (1) Overview of techniques of preparation of tissue for microscopic evaluation and role of histopathology in clinical diagnosis.

4071 Orientation and Basic Techniques (1) Designed to facilitate transfer of students from campus to hospital community and clinical laboratory. Introduction to medical terminology, ethics, and health team concept. Orientation to basic techniques of methods of study include procedures for collection and handling of specimens, principles of operation of major laboratory instruments, review of laboratory math and introduction of quality control procedures. Portions of course extend over entire clinical year.

4072 Principles of Supervision and Education in Medical Technology (1) Consists of seminars in basic principles of management, supervision, and education theories and methods. There will be comprehensive examination covering the entire course.

Music (698)


The Department of Music offers curricula leading to the Bachelor of Music degree which is designed to prepare students for graduate study and for professional positions, and the Bachelor of Arts degree with a major in music, designed for those students whose interests are strong but essentially non-professional. Information regarding requirements for the B.M. degree may be found on page 173. Information regarding requirements for the major and minors under the revised B.A. curriculum may be obtained in the departmental office.

(a) Concentration in Applied Music - consists of Music 2111-21-31, 2113-23-33, 2310-20-30-40, 27 hours in applied music at the 2000-3000-4000 level (9 hours each), and Junior and Senior recitals. Prerequisites are Music 1111-21-31, 1113-23-33, and 3 quarters of study in applied music at the 1000-level.

(b) Concentration in Music History and Literature - consists of Music 2111-21-31, 2113-23-33, 2119-20-30-40, 27 upper division hours in music history and literature. Prerequisites are Music 1111-21-31, 1113-23-33, and 1340.

Minor A) Concentration in Applied Music - consists of Music 2000, 2111-21-31, 2310-20-30-40 and 18 hours in applied music at the 2000-3000-4000 levels (6 hours each). Prerequisites are the same as those for the major.

(b) Concentration in Music History and Literature - consists of Music 2111-21-31, 2119-20-30-40, 10 upper division hours in music history and literature. Prerequisites are the same as those for the major.

The Bachelor of Science in Music Education, designed for preparation for institutional teaching, is administered by the Department of Music Education. See page 97 for requirements.

General

1000 Fundamentals of Music Theory (3) Theory and practice of basic elements of music. 3 hrs.

1010-20-30-40-50-60 Class Piano (1, 1, 1, 1, 1, 1) For music and music education majors only. Must be taken in sequence. Course may be waived by successful completion of Piano Competency Examination. Waived courses must be substituted with an equivalent number of quarters of study in Music 1580 or above.

1015 Class Voice (1) For music and music education majors only. May be repeated for credit.

2000 Solo Class (0)

2010 Introduction to Musical Theatre Technology (3) Stage technology unique to lyric stage.

Diction for Singers (2, 2, 2) Sounds by phonetic symbols. Opera and art songs used for examples. Performance practice.

Junior Recital (0)

Organ Literature (1, 1, 1) Organ music from preclassical period to present. Prereq: permission of instructor.

Song Literature (2, 2, 2) Study of literature from 1750 to present with emphasis on performance practices. 3012—Classical and Romantic German Art Song; 3022—French and Russian Songs; 3032—Late German and contemporary songs. Prereq: 2075 and permission of instructor.

Woodwind Literature (2, 2, 2) Prereq: permission of instructor.

Percussion Literature (1) Prereq: permission of instructor.

String Literature (2) May be repeated. Maximum 6 hours credit. Prereq: permission of instructor.

Elementary and Intermediate Piano Pedagogy (2, 2, 2) Piano methods and materials for pre-college level student. Collateral laboratory experiences. Prereq: permission of instructor.

Advanced Piano Literature (2, 2, 2) Piano music from preclassical period to present. Prereq: permission of instructor.

Keyboard Harmony (2) Melody harmonization, figured bass realization, and improvisation. Prereq: 1131-33, and keyboard proficiency at the 2000 level.

Organ Improvisation (2) Prereq: 3041 and organ proficiency at the 2000 level.

Jazz Improvisation (2, 2) Study and application of principles of improvisation, including nomenclature, chord progressions, chord-scales, patterns, melodic development, and free form devices. Prereq: permission of instructor. 2 hours and 1 lab.

Brass Literature (2, 2, 2) Prereq: permission of instructor.

Church Service Playing (2) Accompanying on the organ, conducting from the organ, general church service playing. Prereq: permission of instructor.

Opera Production (1-3) Supervised work on opera productions. May be repeated for credit. Prereq: permission of instructor.


Organ Design (3) Historical, tonal and mechanical principles of organ design.

Piano Techniques (1, 1, 1) Problems of piano playing; development of piano technique; style and interpretation; program building. Prereq: permission of instructor.

Organ Techniques (1, 1, 1) Problems of organ playing; development of technical problems in style, interpretation and registration; program building. Prereq: permission of instructor.

Principles of Vocal Pedagogy (1, 1, 1) Examination and evaluation of concepts and approaches to teaching singing (past and present) and related teaching materials. Collateral laboratory experiences accompany the study. Prereq: permission of instructor.

Styles in Opera Acting (3) Study and practice of styles in opera acting based on historical and national characteristics. Prereq: 3015 or permission of instructor.

Projects in Opera Theatre (1-3) May be repeated for credit. Prereq: permission of instructor.

Advanced Instrumental Conducting (3) Development of knowledge and skills in instrumental conducting; study of various periods and composers and relationship of different styles to the conductor's art; musical analysis and practice in conducting. Prereq: Music Ed 4430 or equivalent.

Choral Conducting (3) Development of knowledge and skills in choral conducting; study of various periods and composers and relationship of different styles to the conductor's art; musical analysis and practice in conducting. Prereq: Music Ed 4420 or equivalent.

Church Music Seminar (3, 3) Church music administration. Prereq: permission of instructor.

MUSIC THEORY AND COMPOSITION

Theory (3, 3, 3) Materials of music with emphasis on literature of Baroque, Classic, and Romantic periods. Exercises in writing and analysis. Must be taken in sequence.

Singing and Ear Training (1, 1, 1) Should be taken concurrently with 1111-21-31 or 1118-28-38. Must be taken in sequence. 2 hrs per week.

Honors: Theory I (4, 4, 4) Materials of music with emphasis on literature of Baroque, Classic, and Romantic periods. Exercises and projects in writing and analysis. Designed for music majors with concentrations in theory or composition. Other students may be admitted subject to placement examination. Grade of C or better must be achieved to continue the course sequence.

Theory II (3, 3, 3) Materials of music with emphasis on literature of Romantic and Contemporary periods. Exercises in writing and analysis. Must be taken in sequence. Prereq: 1131 or 1138 or permission of instructor.

Advanced Ear Training (1, 1, 1) Should be taken concurrently with 2111-21-31 or 2119-28-38. Must be taken in sequence. 2 hrs per week.

Honors: Theory II (4, 4, 4) Materials of music with emphasis on literature of Romantic and Contemporary periods. Exercises and projects in writing and analysis. Prereq: 1138 or placement examination.

Tonal Counterpoint (3, 3, 3) Contra-puntal techniques of eighteenth century, with emphasis on works of J.S. Bach. Must be taken in sequence 2130 or 2138.

Instrumentation (3) Basic techniques in scoring for voices; brass, woodwind, and string choirs; and percussion. Prereq: 2131 or 2138.

Analysis I (3) Study and practice in analysis of structures of music from smallest structural units to large compound forms. Emphasis on macro-analytic techniques. Prereq: 2131 or 2138 or equivalent.

Choral Arranging (3, 3) Analysis of scores and writing of arrangements for choirs. Mixed chorus. Prereq: 3112 or permission of instructor.

Orchestration (3) Advanced techniques in instrumental writing with emphasis on scoring for the concert orchestra. Prereq: 3112 or permission of instructor.

Analysis II (3) Continuation of Analysis I with emphasis on micro and linear analytic techniques. Prereq: 3113.

Independent Study in Music Theory (1-3) May be repeated for credit. Prereq: permission of instructor.

Foreign Study (1-16) See page 177.
Students who do not meet proficiency requirements at any level may be required additional study at that level. Course level and credit hours will be determined by the applied faculty.

All students studying applied music at the principal level are required to register for Music 2000 Solo Class. The requirements for this course are to attend scheduled concerts, recitals, master classes, and solo classes and to perform at least once each quarter as partial fulfillment of applied music credit requirements.

Applied Music Fees: $20 per quarter for half-hour lesson (1 credit hour)
$40 per quarter for hour lesson (2-4 credit hours)

Applied Music fees are not refundable after lessons have been scheduled.

1500-2500-3500-4500-5500 Flute (1-4) May be repeated for credit.
1505-2505-3505-4505-5505 Oboe (1-4) May be repeated for credit.
1510-2510-3510-4510-5510 Bassoon (1-4) May be repeated for credit.
1515-2515-3515-4515-5515 Clarinet (1-4) May be repeated for credit.
1520-2520-3520-4520-5520 Saxophone (1-4) May be repeated for credit.
1525-2525-3525-4525-5525 Horn (1-4) May be repeated for credit.
1530-2530-3530-4530-5530 Trumpet (1-4) May be repeated for credit.
1535-2535-3535-4535-5535 Trombone (1-4) May be repeated for credit.
1540-2540-3540-4540-5540 Baritone (1-4) May be repeated for credit.
1545-2545-3545-4545-5545 Tuba (1-4) May be repeated for credit.
1550-2550-3550-4550-5550 Percussion (1-4) May be repeated for credit.
1555-2555-3555-4555-5555 Voice (1-4) May be repeated for credit.
1560-2560-3560-4560-5560 Violin (1-4) May be repeated for credit.
1565-2565-3565-4565-5565 Viola (1-4) May be repeated for credit.
1570-2570-3570-4570-5570 Cello (1-4) May be repeated for credit.
1575-2575-3575-4575-5575 String Bass (1-4) May be repeated for credit.
1580-2580-3580-4580-5580 Piano (1-4) May be repeated for credit.
1585-2585-3585-4585-5585 Harpsichord (1-4) May be repeated for credit.
1590-2590-3590-4590-5590 Organ (1-4) May be repeated for credit.
1595-2595-3595-4595-5595 Guitar (1-4) May be repeated for credit.
2599-3599-4599-5599 Composition (1-3, 1-3, 1-3, 1-3) May be repeated for credit. Prereq: permission of instructor.
3597-4597-5597 Composition with Electronic Media (1-3, 1-3, 1-3) May be repeated for credit. Prereq: 3199 and permission of instructor.

ENSEMBLES
All students studying applied music are required to perform in a major musical organization each quarter. String, woodwind, brass, and percussion students must be enrolled in an instrumental organization; voice students in a choral organization, opera workshop or opera theatre.
A student's preference for musical organization will be honored whenever possible, but factors considered in making the assignment will include playing ability, specific needs of various organizations, and previous performance experience at the University.

3600-5600 Small Ensemble (1, 1) May be repeated for credit.
3602-5602 Brass Choir (1, 1) May be repeated for credit.
3604-5604 Jazz Ensemble (1, 1) May be repeated for credit.
3606-5606 Trombone Choir (1, 1) May be repeated for credit.
3607-5607 Tuba Ensemble (1, 1) May be repeated for credit.
3610-5610 Percussion Ensemble (1, 1) May be repeated for credit.
3612-5612 Baroque Ensemble (1, 1) May be repeated for credit.
3620-5620 U.T. Singers (1, 1) May be repeated for credit.
3630-5630 Chamber Singers (1, 1) May be repeated for credit.
3632-5632 Collegium (1, 1) May be repeated for credit.
3634-5634 Saxophone Choir (1, 1) May be repeated for credit.
3640-5640 Opera Theatre (1, 1) May be repeated for credit.
3642-5642 Opera Workshop (1, 1) May be repeated for credit.
3650-5650 Concert Band (1, 1) May be repeated for credit.
3652-5652 Campus Band (1, 1) May be repeated for credit.
3654-5654 Varsity Band (1, 1) May be repeated for credit.
3656-5656 Laboratory Band (1, 1) May be repeated for credit.
3657-5657 Marching Band (1, 1) May be repeated for credit.
3670-5670 Symphony Orchestra (1, 1) May be repeated for credit.
3680-5680 Concert Choir (1, 1) May be repeated for credit.
3682-5682 University Chorus (1, 1) May be repeated for credit.
3684-5684 Campus Chorus (1, 1) May be repeated for credit.
3686-5686 Men's Glee Club (1, 1) May be repeated for credit.
3687-5687 Women's Chorale (1, 1) May be repeated for credit.
3699-5699 Accompanying (1, 1) May be repeated for credit.
GRADUATE
The Department of Music offers the Master of Music degree in performance, composition, music theory, choral conducting, and Suzuki string techniques, and the Master of Arts degree in musicology and music theory. See the Graduate School Catalog for admission and degree requirements.

5000 Thesis
5001 Choral Conducting Document (3)
5002 Non-Thesis Graduation Completion (3)
5010 Organ Literature Seminar (3)
5020 Piano Literature Seminar (3)
5030 Choral Literature Seminar (3)
5040 Vocal Literature Seminar (3)
5050 Graduate Recital (3)
5051 Opera Performance (3)
5052 Vocal Chamber Music Performance (3)
5053 Choral Conducting Performance (3)
5060 Seminar in Choral Performance (3)
5070 Opera Production (1-3)
5090 Special Topics in Performance (1-3)
5100 Independent Study in Music Theory (1-3)
5111 Advanced Harmony (3)
5112 Proseminar in Music Theory (1)
5114 History of Music Theory (3)
5115 Theory of Computers and Music Research (3)
5116 Musical Styles (3)
5119 Music Theory for the Secondary School Teacher (3)
5121 Analytical Techniques (3)
5125 Practicum in Computers and Music Research (3)
5150 Seminar in Music Theory (3)
5200 Independent Study in Music History and Literature (1-3)
5210 Introduction to Music Research (3)
5220 Proseminar (3)
5270 Seminar in Musicology (3)
5315 Band Literature (3)
5350 Music in the Middle Ages (3)
5352 Music in the Renaissance (3)
5353 Music in the Baroque Period (3)
5355 Music in the Classic Period (3)
5597 Composition with Electronic Media (1-3)

Organizational Psychology Programs
See Graduate School.

Philosophy (745)

Professors:
J.W. Davis (Head), Ph.D. Emory; R.B. Edwards, Ph.D. Emory; R.D. Herrmann, Ph.D. Deinuiz (Germany); M.H. Moore (Emeritus), Ph.D. Chicago; D. Van de Vate, Ph.D. Yale.

Associate Professors:

Assistant Professors:
J.O. Bennett, Ph.D. Tulane; G.B. Brenkert, Ph.D. Michigan; S.M. Cohen, Ph.D. Northwestern; K.A. Emnett, Ph.D. Ohio State; H.P. Hamlin, Ph.D. Georgia; E.R. Jones III, Ph.D. Chicago; B.C. Latta, Ph.D. Yale; S.J. Reaven, Ph.D. California (Berkeley).

Instructor:
M.L. Osborne, M.A. Bryn Mawr.

Philosophy seeks to understand humans, the world, their relations. It involves (1) use of logical and scientific methods, (2) appreciation of all values, (3) history of ideas, (4) philosophical systems. Philosophy is an appropriate major for students wishing a broad education, and those preparing for careers as writers (whether journalistic or literary), lawyers, ministers, teachers, in various types of political and government service, and in nontechnical positions in business and industry. A major in philosophy implies a balanced program in the humanities, natural and social sciences. Graduate students should read French or German, preferably both; other ancient or modern languages are useful and for some advanced work necessary.

UNDERGRADUATE

Major: 36 hours in courses numbered 2000 and above. Majors should discuss their program with a member of the philosophy faculty.

Minor: 24 hours in courses numbered 2000 and above. It is suggested that minors discuss their programs with a member of the philosophy faculty.

American Studies. See Cultural Studies.

Russian and East European Studies. See Cultural Studies.

1510-20 Introduction to Philosophy (4, 4)
1510—Philosophical problems of human nature and values. 1520—Problems of language, knowledge and reality.

1600 Topics in Philosophy (4) May be repeated once for credit.

2310 Elementary Ethics (4) Theories of ethical values.

2410 Art and Experience (4) Introduction to various understandings of art.

2510-20 Elementary Logic (4, 4)
2510—Traditional or modern deductive logic, informal fallacies, use of language, definitions. (3810 is recommended as introductory for students with mathematical aptitude.) 2520—Inductive reasoning, elements of scientific method and statistical inference.

3111 History of Ancient Philosophy (4) Pre-Socratic through Aristotle.

3121 History of Hellenistic, Roman, and Medieval Philosophy (4)

3131 History of Seventeenth- and Eighteenth-Century Philosophy (4)

3141 History of Nineteenth- and Early Twentieth-Century Philosophy (4)

3270 Russian Philosophical and Theological Thought (4) (Same as Russian 3270 and Religious Studies 3270.)

3311-12 American Philosophy (4, 4) 3311—Colonial to late nineteenth century; 3312—Late nineteenth century to present.

3315 American Ideals (4) Ideological variants in American scene.

3320 Philosophy of Law (4) Nature, sources, function of law.

3330 Philosophy of History (4) Speculative and critical aspects of philosophy of history.

3410 Philosophical Ideas in Literature (4) Philosophical assumptions and implications in major literary works.

3420 Philosophy of Literature (4) Study of the nature, functions, value and epistemic principles of literary arts.

3430 Concepts of Woman (4) Examination of some of the theoretical foundations of feminism and anti-feminism.

3440 Social Ethics (4) Ethical theory as related to politics, economics, education, law, religion and the family.

3510 Existentialism (4)

3550 Marxism as Philosophy (4)

3611 Religious and Philosophical Issues in Medical Ethics (4) (Same as Religious Studies 3611.)

3650 Philosophy and Religion in India (4) (Same as Religious Studies 3650.)

3660 Buddhist Philosophy and Religion (4) (Same as Religious Studies 3660.)

3671 Religion and Philosophy in China (4) (Same as Religious Studies 3671.)

3690 Philosophy of Religion (4) Analysis of basic issues of religion. (Same as Religious Studies 3690.)


3740-50 Conceptual History of Science (4, 4)
3740—The Scientific Revolution: historical evolution of thought in astronomy, mechanics, and philosophy of nature up to Newton. 3750—The Development and Decline of Newtonian Science: historical evolution of thought on the nature of matter and of light, and on that of life. Prereq: Eight hours of physical science or permission of instructor.

3770 Introduction to Philosophy of Science (4) Standard topics in philosophy of science: scientific method, nature of laws and theories, problem of induction, explanation, measurement. No background in logic is presupposed.

3810 Introductory Symbolic Logic (4) Techniques for formal analysis of deductive reasoning (propositional logic and quantification theory).

3910 Contemporary Aesthetics (4) Philosophical discussion of contemporary art.

4000 Special Topics (4) A student- or instructor-initiated course to be offered at convenience of Department. Subject matter to be determined by mutual consent of students and instructor with approval of Department. Prerequisites to be determined by Department. May be repeated for credit.

4101 Foreign Study (1-16) See page 177.

4102 Off-Campus Study (4-12) See page 177.

4103 Independent Study (4-12) See page 177.

4111-21 Modern Religious Philosophies (4, 4) (Same as Religious Studies 4111-21.)

4310 Intermediate Ethics (4) Topics in meta-ethics or ethics.

4370-71 Theoretical Issues in Medical Ethics (4, 4)
4370—Prereq: 2310 or 3611 or permission of the instructor. 4371—Prereq: 4370 or permission of the instructor. (Same as Religious Studies 4370-71.)
5910-20-30 Research (4, 4, 4)
5950 Clinical Practicum in Medical Ethics (4-12)
6000 Doctoral Research and Dissertation
6110-20-30 Seminars in History of European Philosophy (4, 4, 4)
6150-60 Seminars in History of American Philosophy (4)
6250 Seminar in Philosophy of Religion (4)
6310 Seminar in Axiology (4)
6370 Advanced Topics in Medical Ethics (4)
6510 Seminars in Epistemology (4)
6550 Seminar in Philosophy of Science (4)
6950 Advanced Residence in Medical Ethics (4-12)

Physical Sciences
Major: None offered.
Minor: Consists of the following courses: Physics 2210-20-30, Chemistry 2140-49, 3211-21-31, 3219-29-39, and six hours chosen from Biochemistry 4210-20-30, Chemistry 3410-20-30*, 4140-50, 4910-20-30 or Physics 4140-20-30*, 3610-20-30*. Prerequisites to the minor concentration are Mathematics 1840-50 and Chemistry 1110-20-30. The physical sciences minor is designed particularly for students majoring in one of the biological sciences and/or preparing for graduate studies in a biological science or medicine.

Physics and Astronomy

Associate Professors: C.R. Bingham, Ph.D. Tennessee; W.E. Blass, Ph.D. Michigan State; T.A. Callcott, Ph.D. Purdue; R.W. Childers, Ph.D. Vanderbilt; J.R. Connel, Ph.D. Colorado State; K.E. Duckett, Ph.D. Tennessee; W.A. Dunnill, Ph.D. Florida; O.C. Eldridge, Ph.D. California (Berkeley); E.L. Hart, Ph.D. Cornell; P.G. Hurry, Ph.D. Tennessee; H.C. Jacobson, Ph.D. Yale; J.W.L. Lewis, Ph.D. Mississippi; R.W. Lide, Ph.D. Michigan; L.R. Lance, Ph.D. Tennessee; D.J. Pegg, Ph.D. New Hampshire; L.L. Riedinger, Ph.D. Vanderbilt; S.Y. Shieh, Ph.D. Maryland; C.C. Shih, Ph.D. Cornell.

Astronomy (150)
2110-20-30 Introductory Astronomy (4, 4, 4) Surveys astronomical data and theories. 2110-20 concentrates on the solar system. 2130 introduces stellar astronomy including binary and variable stars clusters and nebulae. It is recommended that the courses be taken in sequence. 4 hrs including demonstration lab.
2118-23-38 Honors: Introductory Astronomy (4, 4, 4) Observation and theories of matter and space in the universe. Planets, stars, and the interstellar medium. Must be taken in sequence. 3 hrs lecture-discussion; 2 hrs lab per week. Coreq: Math 1810-20-30 or equivalent.
4110-20-30 Astrophysics (3, 3, 3) Physics of stars and interstellar matter, planets and interplanetary matter; atmospheres, interiors, and evolution; nebulae, quasars, pulsars, etc. Observational data and their determination. Current developments. Approach will be interdisciplinary. Acceptable for major credit in physics. Prereq: Physics 2330 and permission of instructor.

Physics (773)
UNDERGRADUATE
The undergraduate program in physics is designed to give the student a wide background which will permit ready specialization in various areas such as nuclear physics, solid state physics, high energy physics, molecular physics, etc. Students planning to major in physics are urged to consult advisers in the Department of Physics prior to registration in freshman year with regard to selection of proper first course in physics.
Major: Physics 1318-28-38 and Mathematics 1840-50-60 are prerequisites to a major in physics which includes the following courses: Physics 2318-28-38, Mathematics 2840-50-60; Physics 3210-20; either Physics 3710-20-30 or 4110-20-30; 4210-20; and at least six hours from 3510-20-30, 3610-20, 4230-40, 4510-20-30, 4540-50. Physics 1310-20-30 or Basic Engineering 1310-20-30 may be substituted for Physics 1318-28-38 and Physics 2310-20-30 may be substituted for Physics 2318-28-38 as a graduation requirement. Transfer students from other schools may be required to substitute 2510 and 1330 for 1310-20-30 or 1318-28-38.
A major in physics with a concentration in high energy physics includes Physics 2310-20 or 2318-28, 3210-20, 3710-20-30, 4210-20, 4710-20-30, and Mathematics 2840-50-60. It is suggested that students also take Chemistry 1110-20-30, 3211-21-31, 3219-29-39, and 12
hours of an approved biological science.

Minor: A minor in physics consists of 24 hours of courses including 2318-28-38 and the remainder from physics courses numbered 3000 or above. Substitution privileges in the major statement apply also to the minor.

An Engineering Physics Curriculum is also offered. The program is described on page 141 and listed in tabular form on page 121.

1210-20-30 Introductory Physics (4, 4, 4) General course for students whose major falls outside the physical sciences. Concepts of physics developed by observation of phenomena and logic rather than mathematical analysis. Specific areas covered in the first quarter are vectors and kinematics, in the second quarter wave motion, sound, electricity and magnetism, and light are discussed. In the third quarter the main emphasis is on modern physics. It is recommended that the courses be taken in sequence. 1210-20 represent a survey of Classical Physics. 1210-20 is recommended as an introduction to the discipline for Liberal Arts non-science majors.

1310-20-30 Fundamentals of Physics: Mechanics and Heat (4, 4, 4) First course in physics for engineers and liberal arts majors in mathematics and the physical sciences. 1310-20 is equivalent for graduation purposes. Must be taken in sequence. Coreq: Mathematics 1840-50-60. 4 hours lecture, 2 hours lab.

1318-28-38 Honors: Fundamentals of Physics: Mechanics and Heat (4, 4, 4) Honors course designed for physics and engineering physics majors and for qualified students from other disciplines. Must be taken in sequence. Coreq: Mathematics 1840-50-60. 3 hours lecture, 2 hours lab.

1410-20-30 Nature of the Physical World (4, 4, 4) Introductory course in concepts and principles of physical sciences which enables a student to establish a unified picture of the physical universe. In the first two terms the principles of mechanics, electricity, and wave motion are developed and applied to such varied fields as solar systems, atomic and molecular behavior, radiation, dynamic changes in the atmosphere and in the earth's crust, and to stellar and galactic phenomena. In the third term these principles are applied in more detail to such topics as nuclear energy, cosmology, atmospheric and oceanic phenomena, drifting continents and science and society. May be taken out of sequence with permission of instructor. 4 hours including lab discussion.

1450 Physics of Athletic Activity (4) Principles of physics, particularly mechanics and heat, are introduced. Discussion of these ideas will emphasize physics as applied to particularly sports-related course topics. Course topics include statics and equilibrium, linear and angular motion, momentum, force work, and energy. 4 hours lecture and demonstration.

1810 Physics of Music (4) Production, transmission, and reception of sound waves. Frequency, intensity, timbre. Basic acoustics of instruments and voice. 4 hrs lecture and demonstration.

2210-20-30 Elements of Physics (4, 4, 4) 2210-Mechanics, Properties of Fluids, Heat. 2220-Electricity and Magnetism, Sound Waves, Optics, Atomic and Nuclear Physics, Radiation Protection. Basic physical principles and applications required in pre-medical, pre-dental, pre-pharmacy, and pre-veterinary programs. Should be taken in sequence. Coreq: Math 1550 or Math 1850 or (if equivalent honors courses). 3 hrs lecture and 3 hrs lab.

2240-50-60 Elements of Physics for Architects (4, 4, 4) 2240-Mechanics, elasticity, and fluids. Coreq: Mathematics 1840 or 1550; 2250-Heat, thermodynamics, vibration, waves, acoustics, light and color. Coreq: Physics 2240. Coreq: Mathematics 1850 or 1560; 2260-Electricity and magnetism, alternate energy sources. Coreq: Physics 2240. Coreq: Mathematics 1860 or 1560. Basic physical principles with applications to architecture. Course is designed for students in the School of Architecture. 3 hours lecture and 3 hours lab-problem session.

2310-20-30 Fundamentals of Physics: Electricity, Waves and Optics, Modern Physics (3, 3, 3) Required of all engineering students. 2318 —Electricity. 2330-Waves and Optics. 2330 —Modern Physics. Must be taken in sequence. Prereq: 1210-20-30 or Basic Engineering 1310-20-30, or Physics 21 (ave Coreq: Math 2610, 2810-20, 3 hrs lecture, 2 hrs laboratory-recitation per week.


2510 Mechanics (5) Statics, cinematics, Newton's Laws, momentum, energy, rotation: 4 hours lecture-recitation. 3 hours laboratory-problem session. Prereq: Mathematics 1840-50-60 or equivalent. 2510 satisfies prerequisite for Physics 2310, although physics majors should also take Physics 1330 as a prerequisite to the major.

3210-20-50 Mechanics (3, 3, 3) 3210—Statics, cinematics, and dynamics of a particle; 3220—Statics, cinematics, and dynamics of systems of particles or particles and rigid bodies; 3250—Lagrangian and Hamiltonian equations of motion. Must be taken in sequence. Coreq: 2320 and Math 2860.

3230 Heat and Thermodynamics (3) Concepts of temperature and heat; laws of thermodynamics; application to gaseous and chemical problems. Prereq: 2320 or 2330 and calculus; 3210-20 or instructor's permission.


3510-20-30 Physical Measurements (3, 3, 3) Laboratory measurement of some physical quantities. Theory supplied where necessary. Prereq: 2310-20-30 or 2310-20-30, and calculus; 3510 for 3250 and 3530. 3 labs.

3610-20 Electronics (3, 3) Electronic components and circuits of interest to physicists. Prereq: 2310- 20-30 or 2310-20-30 and calculus. 3 labs.

3630 Nuclear Electronics Laboratory (3) Elementary circuits of interest in nuclear instrumentation are designed and built, and their characteristics are tested as a function of various parameters. Prereq: 3610-20.

3640-50-60 Health Physics Practicum (3, 3, 3) Instrumentation: legal aspects and practice of applying physics. Preparation, keeping and report writing. For students in health physics cooperative program.

3710-20-30 Introduction to Atomic and Nuclear Physics (3, 3, 3) 3710—Special relativity and early quantum mechanics; 3720—Nuclear physics. Prereq: Math 2860 and Physics 2320 for 3710; 3310 and 3710 for 3720-30.

3990 Junior Seminar (1-3) Topic of current interest. May be repeated for credit with permission of instructor.


4110-20-30 Introduction to Quantum Mechanics (3, 3, 3) Introduction to fundamental principles of quantum mechanics and their applications. Application to atomic, molecular, and nuclear physics. Prereq: 2330 or equivalent, Math 4550.

4140 Elementary Nuclear Physics (3) General properties of nuclear, two-nucleon systems, nuclear forces, nuclear models, nuclear reactions, nuclear disintegrations and beta-decay, nuclear spin and magnetism. Prereq: 3730 or 4120.

4160 Physical Acoustics (4) Considerations funda- mental to detailed investigation of any branch of acoustics; propagation of acoustic waves in the infrasonic, the audible, the ultrasonic, and the hyperbolic ranges of frequencies. 3 hrs and 1 lab. Prereq: 3210-20-30.

4210-20-50 Electricity and Magnetism (3, 3, 3) Intermediate level electrostatics; steady and alter- nating currents; laws of electromagnetism; Maxwell's equations; radiation of electromagnetic waves; reflection and refraction; electromagnetic fields of moving charges. Must be taken in sequence. Prereq: 2320 or 2220 and Math 2830.

4230-40 Modern Physics (4, 4) 4230-Geometrical Optics. Reflection and refraction at a dielectric interface; paraxial theory of interfaces, lenses, and mirrors; thick lenses, lens systems, ray tracing; polarization; imagery; laser light. 4240- Physical Optics. Mathematics of wave motion, superposition of waves; interference; Fraunhofer and Fresnel diffraction; Fourier optics; holography. Prereq: 4210 or permission of instructor. 3 hours lecture and 3 hours lab.

4510-20-30 Atomic Physics Laboratory (3, 3, 3) Experiments in: fundamental particle properties, photoelectricity, conduction of electricity through gases, atomic and molecular spectroscopy, X-ray. Prereq or coreq: 3710-20-30. 3 labs.

4540-50 Experimental Nuclear and Radiation Physics (4, 4) Interaction of charged particles and electromagnetic radiation with the nucleus and characteristics of various detectors; statistics of counting, nuclear properties. Experiments illustrate recent developments in nuclear and radio reactions; nuclear and radiation. 1 hr lecture, 6 hrs lab. Prereq: 3230.

4580 Principles of Nondestructive Testing (3) De- tection and characterization of discontinuities in materials by non-destructive physical measurement. Ultrasonic, electromagnetic, holographic and penetrating radiation techniques are discussed. Prereq: 2310-20 or permission of instruc- tor. (Same as Engineering Science and Mechanics 4580.)


Political Science (801)

Professors: T.D. Ungs (Head), Ph.D. Iowa; R.S. Avery, Ph.D. Northwestern; D.H. Carlisle, Ph.D. North Carolina; L.S. Greene (Emeritus), Ph.D. Wisconsin; V.R. Iredell, Ph.D. Chicago; D.D. Nimmo, Ph.D. Vanderbilt; H. Plaa; Ph.D. Utah; H.M. Robinson, Ph.D. Syracuse; O.H. Stephens, Jr., Ph.D. Johns Hopkins; D.M. Welborn, Ph.D. Texas.

Associate Professors: R.B. Cunningham, Ph.D. Indiana; J.W. Dodd, Ph.D. Tulane; A.A. Elliott, Ph.D. Columbia; G.C. Evans, Ph.D. Columbia; A.H. Hopkins, Ph.D. Syracuse; P.S. Kronenberg, Ph.D. Pittsburgh; S.J. Ososky, Ph.D. Columbia; R.L. Peterson, Ph.D. Yale; T. MoNi Simpson, Ill; Ph.D. Johns Hopkins; T.A. Smith, Ph.D. Ohio State.

Assistant Professors: B.P. Greene, Ph.D. Indiana; W. Lyons, Ph.D. Oklahoma; C.P. Mauney, Ph.D. Tennessee; G.J. Rathjen, Ph.D. Michigan State; R.E. Robson, Ph.D. Maryland; B.D. Rogers, Ph.D. Indiana; P.R. Schulman, Ph.D. Johns Hopkins.


BUREAU OF PUBLIC ADMINISTRATION

Professors: T.D. Ungs (Director), Ph.D. Iowa; H. Plaa (Associate Director), Ph.D. Illinois.

Associate Professor: P.S. Kronenberg (Associate Director, Nashville)
Ph.D. Pittsburgh.

Assistant Professors: B.P. Greene, Ph.D. Indiana; R.E. Robson (Assistant Director), Ph.D. Maryland; B.D. Rogers,Ph.D. Indiana.

*Nashville.

UNDERGRADUATE

A major consists of forty hours that must be distributed as follows:

(1) Eight hours at the 2000 level in political science or in political science courses not used for triad credit but included on the History and Society list.

(2) Thirty-two hours in political science courses numbered at 3000 and above. Upper division courses on the triad list may be included. These thirty-two hours must include at least one course in each of the four areas of the discipline: United States Government and Politics/Public Administration; Comparative Government and Politics; International Relations; and Political Theory and Methodology.

A minor consists of twenty-four hours that must be distributed as follows:

(1) Eight hours at the 2000 level in political science or in political science courses not used for triad credit but included on the History and Society list.

(2) Sixteen hours in political science courses numbered at 3000 and above. Upper division courses on the triad list may be included.

Public Administration. See pages 77 and 176.

4545-46 The Judicial Process (4, 4) The study of courts as components of political systems, and public policy formulation through judicial decision making. 2510-20 desirable as preceding courses.

4575 Special Topics in United States Government and Politics (4) May be repeated up to a maximum of 8 hours credit with permission of Department.

4610 Budgetary Process (4) Fiscal planning, budget and expenditure processes in government, their policy and administrative implications.

4620 Public Personnel Administration (3) Development of the merit system in government, career systems, public personnel management functions, organization for personnel management.

4630 Problems in Public Management (3) Selected problems. Emphasis on internal and external communication and information systems in government and public access to information.

4740-50-60 Politics and Elections (3, 3, 3) 4740-50—Structure and function of party system, nominations and campaigns. 4760—Voting behavior of the electorate.

4940 Politics and the Environment (4) Examination of formulation and implementation of public policies relating to physical environment with emphasis on water and air pollution control.

Comparative Government and Politics

3605 Political Change in Developing Areas (4) Characteristics and problems of political changes with primary focus on developing areas.

3615-16 Dynamics of Black African Politics (4, 4) 3615-22 Politics of Asian States (4, 4) 3625-26 Latin American Government and Politics (4, 4) 3631-32 Government and Politics of the Soviet Union (4, 4) 3635-36 Politics in Western Democracies (4, 4) Political culture, patterns, and institutions of Western democratic systems. 3641 Government and Politics of Middle East and North Africa (4) 3795 Contemporary Middle East (4) (Same as History 3795.)

4685-66 Policy Making in Democracies (4, 4) Comparative approach to theory and process of making public policies.

4675 Special Topics in Comparative Government and Politics (4) May be repeated up to a maximum of 8 hours credit with permission of department.

International Relations

3701-02 Introduction to International Relations (4, 4) 3701—Methodology and background. 3702—International processes and institutions including war, diplomacy, law and organization.

3712-22 U.S. Foreign Policy Processes (4, 4) Processes whereby U.S. foreign policies are made and implemented, focusing on interaction within federal bureaucracy and roles of the President, Congress, the press, and public opinion.

3790 Contemporary Diplomatic and Military Problems (4) Analysis of current international events.


4711 International Law (4) 4727 Politics of Inter-American Relations (4) Analysis of selected theoretical and policy issues concerning international relations in the Americas with emphasis upon imperialism, intervention, and the Cuban revolution, nationalism, foreign assistance, trade and economic integration.

Political Theory and Methodology

3801 Studies in Ancient Political Thought (4) Classical Greek and Roman political thought.

3802 Studies in Medieval Political Thought (4) From Augustine to Luther: Emphasis on problems and theories of religion and politics.

3803 Studies in Early Modern Political Thought (4) Machiavelli through the Enlightenment.

3804 Studies in 19th- and 20th-Century Political Thought (4) Political theories of industrial and technological societies; 19th and 20th century.

4815 Contemporary Soviet Marxism-Leninism (4) Soviet applications of Marxist-Leninist theory.

4831-32-33 The Systematic Study of Politics (4, 4, 4) Scope, methods and procedures of analysis in political science; intended primarily for seniors intending to pursue graduate work and entering graduate students who have not had such a course.

4875 Special Topics in Political Thought (4) May be repeated up to a maximum of 8 hours credit with permission of Department.

Other

4101 Foreign Study (1-16) See page 177.

4102 Off-Campus Study (1-16) See page 177.

4103 Independent Study (1-16) See page 177.

4975 Proseminar in Political Science (4) Selected research for seniors; primarily for majors. May be repeated up to a maximum of 8 hours with permission of Department.

GRADUATE

The Master's Program

See requirements in the Graduate School Catalog.

The Doctoral Program

General requirements for the degree of Doctor of Philosophy are described in the Graduate School Catalog.

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5110-20 Seminar in World Political Theory (3, 3)

5140 Politics, Administration and Community in Non-metropolitan Areas (3)

5150 Internship in Political Science (3-9)

5210-20 Seminar in World Politics (3, 3, 3)

5211 Directed Readings in Political Science (3)

5250 Seminar in African Politics (3)

5270-80 Seminar in Politics of Development (3, 3)

5310-20 Seminar in Comparative Government (3, 3, 3)

5340-50-60 Seminar in Latin American Government (3, 3, 3)

5370-80 Seminar in Soviet Politics and Government (3, 3)

5410-20-30 Seminar in Public Law (3, 3, 3)

5440-50 Theory and Analysis of U.S. Foreign Policy Processes (4, 4)

5510-20 Seminar in International Organization (3, 3)

5540 Seminar in Comparative Public Administration (3)

5550 Seminar in Administration in Developing Countries (3)

5600 Public Administration (3)

5605 Research and Methodology in Public Administration (3)

5610-20 Seminar in Organization Theory (3, 3)

5611-21-31 Seminar in State-Local Administration (3, 3, 3)

5630 Seminar in Technology and Public Policy (3)

5635-45 Operations Research for Public Administrators (3, 3)

5640-50-60 Seminar in Metropolitan Areas (3, 3, 3)

5641 Seminar in Contemporary Public Policies (3)

5670-80 Seminar in Policy Analysis (3, 3)

5710 Seminar in Politics of Administration (3)

5740 Seminar in Organizational Analysis (3)

5750 Seminar in Public Management (3)

5755 Seminar in Public Management (3)

5760 Seminar in TVA Public Personnel Management Practices (3)

5765-75 Law and the Administrative Process (3, 3)

5770 Practicum in Public Administration (3)

5780 Seminar in Fiscal Management (3)

5785-95 Seminar in Staff Functions (3, 3)

5810 The American Political Process (4)

5820 The American Political Process (4)

5850 Seminar in Comparative State Politics (3)

5910-20-30 Methodology and Bibliography (3, 3, 3)

6000 Doctoral Research and Dissertation

6210 Advanced Studies in International Politics (3)

6310 Advanced Studies in Political Theory (4)

6410 Advanced Studies in International Organization (3)

6430 Advanced Studies in Jurisprudence (3)

6440 Advanced Studies in Comparative Politics (3)

6510-20-30 Advanced Studies in American Constitutional Law (3, 3, 3)

6610-20-30 Advanced Studies in Public Administration (3, 3, 3)

6710 Directed Research in Political Science (3)

6810-20 Advanced Studies in the Political Process (3, 3)
Psychology (830)

Professors: W.H. McManus (Head), Ph.D. California (Berkeley); G.M. Burghardt, Ph.D. Chicago; J.F. Byrne, Ph.D. Tennessee; E.E. Cureton (Emeritus), Ph.D. California, San Francisco; H. Fields, Ph.D. Syracuse; L. Handler, Ph.D. Michigan State; J.F. Lubar, Ph.D. Chicago; E.O. Milton (Research Center), Ph.D. Michigan; K.R. Newton, Ph.D. Tennessee; H.R. Pollito, Ph.D. Michigan; J.M. Porter (Emeritus), Ph.D. Yale; N.L. Rasch, Ph.D. Pennsylvania; F. Samejima, Ph.D. Kejo (Japan); R.R. Shneider, Ph.D. Tennessee; W.S. Verplank, Ph.D. Brown; R.G. Wahlter, Ph.D. Washington; J.A. Wibeler, Ph.D. Syracuse.

Associate Professors: H.S. Bacon, Ph.D. Tennessee; C.P. Cohen, Ph.D. Kansas; L.F. Drogiolam; Ph.D. Catholic; H.R. Friedman, Ph.D. Tennessee; S.J. Handel, Ph.D. Johns Hopkins; M.G. Johnson, Ph.D. Johns Hopkins; A.McIntyre, Ph.D. Yale; J.C. Malone, Ph.D. Duke; W.G. Morgan, Jr., Ph.D. Tennessee; W.M. Simmons, M.S.S.W. Tennessee.


Instructor: E.H. Burt, M.S. Wisconsin.

*On leave.

UNDERGRADUATE

Major: (Concentration in General Psychology) Designed to give students a broad and current background in the science and application of psychological methods and principles. It is particularly suited for students who plan careers in areas such as business, law, and journalism, or who for other reasons desire a liberal education concentrating on psychology. Psychology 2500 and two courses from 2520-30-40 or 2518-28 are prerequisite to a major consisting of Psychology 3150 or 4150, at least 4 hours of laboratory, field or practicum courses, and 32 or more hours of upper division psychology courses.

(Concentration in Academic Psychology) Designed to prepare students for advanced work in the sciences, law, professional, and college level teaching areas of psychology. Prerequisites to the major include Psychology 2500, two courses from 2520-30-40 or 2518-28, Mathematics 1540-50-60 or 1840-50-60, and Biology 1210-20-30. The major consists of Psychology 3150 or 4150, 8 hours of laboratory, field, or practicum courses, and 28 or more hours of upper division courses, of which 12 hours must be in courses at the 4000 level.

Minor: A minor in psychology shall consist of Psychology 2500 and 20 additional hours from 3000 and 4000 level courses.

Honors Program in Psychology. A two-year (Junior-Senior) program leading to the B.A. degree. Objective of the Honors Program is to encourage superior student to accelerate development of his grasp of science of psychology program encourages independent study.

Eligibility: Selection of participants is determined by departmental Undergraduate Honors Committee. The interested student should apply to the psychology department. Successful applicants usually have a G.P.A. of at least 3.0. Requirements: Psychology 2500 or 2518 and one other 2000 level course in psychology; 3150 and one quarter of laboratory or field experience. Honors students will complete Psychology 4948-58-68 and Psychology 4978-88-98.

Completion of the Honors Program is dependent upon submission of an acceptable Honors research thesis and passing of a final Honors Examination.

2500 General Psychology (4) An introduction to psychology, with emphasis on the development, methods, and contributions of the major movements and ideas which define contemporary psychology.

2518-28 Honors: General Psychology (4, 4) First quarter an enriched survey of general psychology. Second quarter participation in psychological research, either individually or group arranged. Prereq for 2518: Minimum ACT Composite 26, GPA 3.2. Prereq for 2528: admission by permission of department.

2520 Biological Foundations of Behavior (4) Survey of theories and research pertinent to the biological foundations of behavior. General Psychology recommended.

2530 Psychology as a Social Science (4) Introduction to individual behavior and experience in a social context. General Psychology recommended.

2540 Psychology of the Individual (4) Study of individuals, their behavior, and the progressive changes in behavior that occur in natural environments: introduction to personality, development, and abnormal psychology. Recommended: 2500

3120 Social Psychology (4) General survey of theories, methods and research findings on individual behavior in a social context. Prereq: 2500.

3129 Social Psychology Laboratory (2) Prereq 3120. Coreq: 3119.

3150 Psychological Statistics (4) Introduction to basic statistical methods used in behavioral sciences.

3210 Learning and Thinking (4) Study of the theoretical and empirical basis of learning and thinking. General Psychology recommended.

3219 Laboratory in Learning and Thinking (2) Prereq: 3210. Coreq: 3219.

3220 Motivation and Emotion (4) Current theories, approaches and their development.


3319 Introduction to Research in Psychology (2) Basic techniques of research in behavioral science, including experimentation and naturalistic observation. Coreq: One of the following: 3129, 3129, 3559.

3550 Child Psychology (4) Origin and principles of behavior in infancy and childhood. Physical, intellectual, social, emotional, and language behavior of the normal child. 2540 recommended.


3616-26 Human Relations (0, 4) Experience and study of human interaction in dyadic, small and large group situations. Primarily experimental. No credit unless sequence is completed. Satisfactory-No Credit.

3650 Abnormal Psychology (4) Constitutional and environmental factors in abnormal behavior; neurotic and psychotic reactions; nonclinical discussion of diagnostic and therapeutic methods. 2540 recommended.

4101 Foreign Study (1-16) See page 177.

4102 Off-Campus Study (1-16) See page 177.

Psychology 4103 and 4109 are courses of independent study and research taken by permission of instructor only. Course requirements, meeting times, and grading procedures are established by agreement between the student and a member of the psychology faculty. For each credit hour, a student may expect to spend from two to three hours per week for the quarter. No more than 24 credit hours may be earned in courses 4103-4107-4109 combined.

4103 Independent Study (1-16) May be repeated. Maximum credit 16 hours.

4107 Experience in Individualized Instruction (1-6) May be repeated. Maximum credit 12 hours. Graded by letter grade only. Prereq: Permission of instructor.

4109 Undergraduate Research (1-16) May be repeated for credit to maximum of 16 hrs. Prereq: Permission of instructor.

4120 Topics in Social Psychology (4) Intensive analysis of selected research topics. Prereq 3120 or Social 3130. (Same as Sociology 4120.)

4150 Probability Models in Psychology (4) Introduction to use of probability models in theory of binary test items, differential psychology, comparison of different populations in specific psychological parameters, individual choice behavior, and testing of psychological hypotheses in human and animal behavior, reliability theory and regression theory. Prereq: Math 1560 or 1860 or permission of instructor.

4230 Sensory Processes and Perception (4) Survey of sensory and perceptual processes with emphasis on audition and vision. Prereq: 3150, 2520 recommended.

4239 Laboratory in Sensory Processes and Perception (2) Prereq or coreq: 4230.

4460 Organizational Industrial Psychology (3) (Same as Industrial Management 4460.)

4510 Personality Theories (4) Prereq: 3650 or 3660.

4519 Research in Personality (4) Discussion and demonstration of research on individual as it relates to major theoretical issues and to substantive areas of investigation. Prereq: 3150 or equivalent and senior standing.

4520 Personality and Social Systems (4) Prereq: 2540.

4610 Group Processes (3) Study and experience of theory and techniques of group processing and facilitation. Those participating in 4610 are expected to continue into 4620 and 4630. Prereq: 3616-26 and permission of instructor.

4620 Seminar in Group Processes (0, 6) Didactic and laboratory experience for those qualified for further training as group facilitators. Prereq: 4610 and permission. No credit given until sequence is completed.

4640 Psychological Tests and Measures (4) Theory and construction of individual and group measures; survey of various methods of assessment of intelligence, personality, special abilities, and educational achievement. Prereq: 3150.

4650 Symbolic Processes (4) Logic of signs and symbols; directed and associative thinking; memory, problem solving, and concept formation; nature, use, and development of language. Prereq: 3210 or permission of instructor.

4660 The Psychology of Language (4) Theories and descriptions of phonology, syntax, and semantics as applied to psychology and related disciplines. 4650 or linguistics background recommended.
4710 Physiological Psychology (4) Nervous system and physiological correlates of behavior. Prereq: One year of biology or zoology and Psychology 2520.

4719 Physiological Psychology Laboratory (4) Laboratory studies of nervous system and physiological correlates of behavior. Coreq: 4710.

4720 Comparative Animal Behavior (4) Methods and principles. (Same as Zoology 4720.)

4729 Comparative Animal Behavior Laboratory (4) Laboratory and field studies. Coreq: 4720. (Same as Zoology 4729.)

4750 Evolution and Ontogeny of Social Behavior (4) Genetic, evolutionary, ecological, and developmental processes as they apply to social organization and dynamics of vertebrates. Prereq: Permission of instructor.

4780 Psychology and Current Issues (4) Research and theory relevant to selected contemporary issues. 4 class hours per week. Prereq: Permission of instructor.

4830 History and Systems of Psychology (4) Prereq: 9 hours of upper division psychology.

4850 Learning Theories (4) Historical and theoretical development of learning models. Prereq: 3210.

4860 Programmed Learning (3) (Same as Education C 4460.)

4870 Contemporary Research in Behavior of Women (4) Study of interaction of cultural and biological factors in determining the behavior of women, with emphasis on physiological mechanisms involved.

4880 Afro-American Psychology (4) Review and analysis of psychological literature on Afro-Americans. Prereq: Permission of instructor. (Same as Black Studies 4480.)

4900 Aspects of Urban Environment (4) (Same as Architecture 4900, Human Services 4900, and Real Estate 4900.)

4910 Senior Seminar in General Psychology (4) Integrative review of major problems in psychology. Intensive examination of selected topics. Prereq: Permission of instructor.

4948-58-68 Honors: Reading and Research (4, 4, 4) Honors candidates only.

4978-88-98 Honors: Senior Reading and Research (4, 4, 4) Honors candidates only.

GRADUATE
The Master's Program
See requirements in the Graduate School Catalog.
The Doctoral Program
General requirements for the degree of Doctor of Philosophy are described in the Graduate School Catalog.

5000 Thesis
5002 Non-Thesis Graduation Completion (3)

5019-29-39 Laboratory Techniques in Experimental Psychology (3, 3, 3)

5070 Seminar in College Teaching (2)

5079 Practicum in College Teaching (2)

5080 Current Topics in Applied Psychology (3)

5100 Developmental Psychology (3)

5110 Clinical Aspects of Human Sexuality (3)

5111-12-13 Seminar in Current Issues in School Psychology (1, 1, 1)

5140-50-60 Psychoeducational Assessment (3, 3, 3)

5149-59-69 Practicum in School Psychology I (2, 2, 2)

5170-80-90 Proseminar in Organizational Psychology (3, 3, 3)

5210 Readings in Psychology (1)

5220 Readings in Psychology (2)

5230 Readings in Psychology (2)

5240 Readings in Psychology (4)

5250 Readings in Psychology (5)

5260 Special Problems in Psychology (1)

5270 Special Problems in Psychology (2)

5280 Special Problems in Psychology (3)

5290 Special Problems in Psychology (4)

5300 Special Problems in Psychology (5)

5319 Field Work in School Psychology: Level I (2)

5340 Group Dynamics (3)

5350-60-70 Seminar in Psychology (3, 3, 3)

5400 Psychophysics and Scaling Methods (3)

5420-30-40 Advanced Psychological Statistics (3, 3, 3)

5445 Advanced Correlational Methods (3)

5450 Human Problems in Administration (3)

5460 Personnel Research Seminar (3)

5500 Fundamentals of Psychometrics (4)

5510 Instrumentation for Psychological Research (3)

5520 Theory of Mental Measurement (3)

5530 Test Construction and Interpretation (3)

5550 Advanced Social Psychology (3)

5560-70 Seminar in Social Psychology (3, 3)

5580 Theories of Personality (3)

5581-82-83 Clinical Psychology I: Human Development and Personality (2, 2, 2)

5589 Psychological Techniques Laboratory (2)

5590 Psychodynamics (3)

5591-92-93 Clinical Psychology I: Patterns of Adaptation (2, 2, 2)

5600 Psychopathology (3)

5601-02-03 Clinical Psychology I: Behavioral Deviance and Psychopathology (2, 2, 2)

5610-20 Psychology of Learning (3, 3)

5650 Ethics and Professional Practices (1)

5670 Forensic Psychology (2)

5680 Neural Basis of Behavior (3)

5690 Psychopathology (3)

5713 Learning Modules for Techniques in Professional Psychology (1-4)

5750 Ethological Psychology (3)

5760 General Vertebrate Neuroanatomy (3)

5789 Advanced Techniques in Physiological Psychology (3)

5790 Seminar in Psycholinguistic Concepts in Speech Pathology (3)

5810-20 Techniques of Psychological Examination (3, 3)

5819-29 Practicum in Techniques of Psychological Examination (2, 2)

5840 Student Appraisal (3)

5850-60-70 Psychological Appraisal (3, 3, 3)

5859-69-79 Practicum in Psychological Appraisal (2, 2, 2)

5890 Counselling Techniques (3)

5950-60-70 Consultation in Human Development Settings (3, 3, 3)

5959-69-79 Practicum in School Psychology II (2, 2, 2)

6000 Doctoral Research and Dissertation

6050 Experimental Methods in Sociology and Social Psychology (3)

6100 Community Psychology (3)

6210-20-30 History, Systems, and Theories in Psychology (3, 3, 3)

6250-60-70 Seminar in Organizational Psychology (3, 3, 3)

6280-290-300 Factor Analysis (3, 3, 3)

6310 Seminar in Motivation and Emotion (3)

6319 Field Work in School Psychology: Level II (2)

6320 Seminar in Research Methods (3)

6330 Seminar in Learning (3)

6340 Seminar in Developmental Psychology (3)

6350 Seminar in Thinking (3)

6360 Seminar in Sensation and Perception (3)

6370 Seminar in Theoretical Psychology (3)

6380 Seminar in Industrial Psychology (3)

6390 Seminar in Psychotherapy (2)

6395 Seminar in Assessment (3)

6400 Seminar in Changing Concepts in Clinical Psychology (3)

6405 Seminar in Psychopathology (3)

6410-20-30 Psychotherapy (3, 3, 3)

6411-12-13-14 Psychotherapy: Elective Concentration Learning Laboratory (2, 2, 2, 2)

6419-29-39 Psychotherapy Practicum (1-3, 1-3, 1-3)

6450-60 Advanced Psychometrics (3, 3)

6491 Field Placement in Clinical Psychology Level-1 (1-8)

6492 Field Placement in Clinical Psychology Level-2 (1-8)

6493 Field Placement in Clinical Psychology Level-3 (1-8)

6494 Field Placement in Clinical Psychology Level-4 (1-8)

6500 Seminar in Psychometrics (3)

6520 Experimental Design (3)

6550 Seminar in Advanced Social Psychology (3)

6560 Directed Readings in Clinical Psychology (2)

6575 Seminar in Mental Health Administration

6560-60-70 Systems Approaches in Psychological Services (3, 3, 3)

6659-69-79 Practicum in School Psychology III (2, 2, 2)

6710 Seminar in Physiological Psychology (3)

6720 Seminar in Comparative and Ethological Psychology (3)

6730 Methods of Ethological and Naturalistic Research (3)

6750 Group Psychotherapy (3)

6780 Advanced Psycholinguistics (3)

6840 Child Psychotherapy (3)

6870 Adult Psychotherapy (3)

6900 Field Work in Industrial Psychology
Religious Studies (863)

Professor: F.S. Lusby (Head), B.D. Colegate (Rochester); D.L. J.Dungan; Th.D. Harward; R.V. Norman, Jr. (Associate Vice Chancellor for Academic Affairs), Ph.D. Yale.

Associate Professors: B.L. Daniels (assistant dean of the College of Liberal Arts), Ph.D. Duke; W.L. Humphreys, Th.D. Union; D.E. Linge, Ph.D. Vanderbilt; C. Reynolds, Ph.D. Harvard.

Assistant Professors: J. Kim, Ph.D. Chicago; R. Lee, Ph.D. Harvard.


On leave

UNDERGRADUATE

Major: Two options are available in religious studies. One religious studies 2000-level course is a prerequisite for either option, and Religious Studies 4850 is required in both options.

The basic option consists of 36 hours of courses at the 3000-level or above (including 4850) with a minimum of 12 hours selected from courses listed below under History and Literature of Religions and a minimum of 12 hours selected from courses listed below under Problematic of Religion. Majors are invited to discuss their programs with a member of the religious studies faculty.

The student-initiated option is to be specified in an individual program defined in consultation between each student and the Department of Religious Studies. At least 36 hours of courses at the 3000-level or above (including 4850) are required for this major. Students whose educational goals would best be served by such a major are encouraged to construct their own plans of study as early as possible. The student-initiated option is recommended for persons who plan to pursue graduate study in religion or a closely related field. Further details are available in the department office, located at 501 McCuig Tower, or from any member of the religious studies faculty.

HISTORY AND LITERATURE OF RELIGIONS

3061-71 History of Western Religious Thought and Institutions (4, 4) 3061—First Century to the Thirteenth Century; 3062—Thirteenth to 1900. (Same as History 3061-71.)

3110 Ancient Israel's Historical and Religious Traditions (4) Political, religious, and cultural history and traditions of ancient Israel from earliest period to Exile.

3120 The Rise of Judaism (4) Political, religious and cultural history and traditions of exilic and post-exilic Israel and early Judaism through 135 A.D. Later literature of Old Testament, Apocrypha, and Dead Sea Scrolls.

3210 Early Greek Mythology (3) (Same as Classics 3210.)

3220 Greek Mythology in the Classical Period (3) (Same as Classics 3220.)

3230 Roman Mythology (3) (Same as Classics 3230.)

3270 Russian Philosophical and Theological Thought (4) (Same as Russian 3270 and Philosophy 3270.)

3311-12 Images of Jesus (4, 4) Introduction to ancient and modern portrayals of Jesus, understood within their cultural milieux. Must be taken in sequence.


3340 Judaism in the Common Era. (3) Survey of literature and traditions of Judaism in the Common Era.

3411-12-13 Renaissance and Reformation (3, 3, 3) (Same as History 3411-12-13.)

3440 Religion of Primitive Peoples (3) (Same as Anthropology 3440.)

3490 African Religions (4) Examination of religions of the indigenous peoples of Africa, including a study of functions of myth, rites, and symbols and an inquiry into how certain political movements in Africa have been and are informed by religious sensibilities. (Same as Anthropology 3490 and Black Studies 3490.)

3510-20 Religion in America (4, 4) Not a survey but a representative profile of religion in America, past and present, organized each quarter around theme or problem. May be taken independently.

3550 Religion and Racism in America (4) Historical and critical examination of role played by religion in supporting and criticizing American racial injustices. (Same as Black Studies 3560.)

3560 Black Religion in America (4) Historical and critical examination of formation and development of black religious thought and institutions in America. (Same as Black Studies 3560.)

3650 Philosophy and Religion in India (4) (Same as Philosophy 3650.)

3660 Buddhist Philosophy and Religion (4) (Same as Philosophy 3660.)

3670 Religion and Philosophy in China (4) (Same as Philosophy 3670.)

3672 Religion and Society in Japan (4) (Same as Sociology 3672.)

3680 Islam (4) Origin and early history, rapid spread as a world faith, development of Muslim theology and culture, interaction with modern cultures. (Same as Philosophy 3690.)

3710 Literature of English Bible (3) (Same as English 3710.)

3711 Literature of the English Bible (3) (Same as English 3711.)

3713 Religion in the Middle Ages (4) Study of medieval religion and its role in European culture between 590 and 1500.

3770 Zen Buddhism (3) Examination of historical, philosophical, and meditational materials of Zen. Special emphasis upon Zen theories of emptiness, no-mind, sudden enlightenment, and the koan.

4210 Topics in Ancient Israelite and Ancient Near Eastern Religions (4) Prereq: 3110-20 or permission of instructor. May be repeated once for credit.

4310 Jesus and Paul Compared (4) Jesus' teaching and activity in context of first-century Palestine Judaism; analysis of what Apostle Paul made of the tradition of and about Jesus. 2810 or 2811 recommended.

4450 Topics in American Religion (4) Prereq: One of the following: 3510, 3520, 4410; or permission of instructor. May be repeated once for credit.

4460 Topics in Early Christianity and Hellenistic Religions (4) Selected issues, figures, and institutions. Seniors and graduate students only, except by permission of Department. Prereq: Permission of instructor. May be repeated for credit to a maximum of 12 hours.

4670 Topics in Eastern Religions (4) Selected figures, issues, and institutions. Seniors and graduate students only, except by permission of Department. Prereq: 3560-60, 70. May be repeated for credit to a maximum of 12 hours.

4810-20-30 Readings and Research in Religious Studies (3-4, 3-4, 3-4)

PROBLEMATIC OF RELIGION

3011 Phenomenology of Religion (4) Examination of recurrent forms, themes and patterns in history of religion, such as gods, heroes, myth, cultural heroes, initiations and ascensions.

3021 Religious Myth, Symbol, and Ritual (4) Study of interrelation of myths, symbols, and rituals among preliterate peoples through a specific motif, such as solar, lunar, and communal.

3600-10 Religious Ethics (4, 4) Historical and critical survey of religious ethics; basic theories and their application in social problems.

3611 Religious and Philosophical Issues in Medical Ethics (4) Explores ethical issues in medicine such as abortion, euthanasia, human experimentation, fairness in health care delivery and the doctor-patient relationship. (Same as Philosophy 3611.)

3620 Topics in Religious Ethics (4) Examination of particular theoretical issues and social problems from perspectives of religious ethics. May be repeated once for credit.

3690 Philosophy of Religion (4) (Same as Philosophy 3690.)

3715 Religious Thought in the Nineteenth Century (4) Major problems and themes in European and American religious thought between 1800 and the beginning of World War I.

3720 Contemporary Religious Thought (3) Major themes, issues, and thinkers.

3740 Issues in Science and Religion (3) Relation of religion to history, methods, and theories of science.

3750 Theology and Literature (3) Exploration of issues raised for religious inquiry by phenomenon of literature. Relation of religious and moral considerations to problems of literary criticism. Relation of religious language to certain forms of human expression (symbol, metaphor, myth, image) identified in study of literature.

3760 Eastern Religions and Western Thought (3) Critical consideration of influences of Hindu and Buddhist philosophy on Western thinkers.

3780 The Literature of Dissent (3) Critique of religion in Western thought through anti-clerical, atheistic, rebellions, and revolution in such thinkers as Locricetti, Spinoza, Voltare, Feuerbach, Marx, Nietzsche, Russell, and Camus.

4101 Foreign Study (1-16) See page 177.

4102 Off-Campus Study (1-16) See page 177.
Romance Languages


Assistant Professors: M.H. Handelsman, Ph.D. Florida; K.D. Levy, Ph.D. Kentucky; C.R. Pinsky, Ph.D. California (Berkeley); F. Wilhite, Ph.D. Tennessee.

Instructors: C.L. Almeida, M.A. Middlebury; C.G. Cox, M.A. Tennessee; M.T. Rabot, Cert. de Lic., Poitiers; M. Sanders, M.A. Minnesota; S.F. Seilman, M.A. Tennessee; P.A. Wilson, M.A. Tufts.

Placement Examination: Students who have had two or more years' work in French, Italian, or Spanish in high school or one year's work in another college should register in French, Italian, or Spanish 2510. During the first week of the quarter a placement test will be given, and students will be advised if a change in registration is indicated.

Proficiency Examinations: Students who have acquired a knowledge of French, Italian, or Spanish through private study, tutoring, residence in foreign countries, or the like should initiate a request for a proficiency test in the Office of the Dean of Admissions. A student earning a grade of C or better on such a test will receive credit for a limited number of courses. Superior students are encouraged to proceed as rapidly as their achievement permits.

Note to Majors and Minors in French, Italian, or Spanish and Minors in Portuguese: Students with five hours of upper division courses in French, Italian, or Spanish literature at The University of Tennessee, or equivalent work at other institutions, must either (1) have a minimum grade point in French, Italian, or Spanish before being accepted for a major's program, or (2) qualify by demonstrating, during the first week of the quarter, not less than a minimum ability equivalent to a grade of C or better in the current examination in French, Italian, or Spanish 2520.

All majors must take upper division courses under more than one instructor, and must have an acceptable pronunciation and an adequate reading knowledge of the language.

Latin American Studies. See Cultural Studies.

Certification for Teaching French or Spanish in Tennessee
Consult Certification Clerk, Room 212 Claxton Education Building.

Arabic (127)

1510-20 Spoken Arabic (4, 4) Must be taken in sequence. Dialect will vary depending on instructor. Class meetings and 2 laboratory periods.

2510-20 Elementary Modern Standard (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

3510-20 Intermediate Modern Standard (4, 4)

3610 Islamic Literature in English Translation (4) Survey from origins to modern period of major Islamic literatures, especially Arabic, Persian and Turkish. Readings include The Arabian Nights, The Rubaiyat of Omar Khayyam and Gibran's The Prophet.

4101 Foreign Study (1-16) See page 177.

GRADUATE

5070-80-90 Hispano-Arabic Literature and Culture (3, 3, 3)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

French (405)

Major: Consists of 36 hours in courses numbered 3410 or above. Students whose primary interest is literature must have the following courses (or their equivalent, with permission of the department): 3510-20 or 3610-20 (aspects or survey of literature, 8 hours); 3410 or 3420 or 3430 (intermediate composition and conversation, 3 hours); 4210 (phonetics, 3 hours); 4220 or 4230 (advanced grammar, 3 hours); 4210 (intermediate composition and conversation, 3 hours); 4220 or 4230 (advanced grammar 3 hours); 6 hours selected from courses 3410-20-30 (intermediate composition and conversation), 4220-30 (advanced grammar), or 4250-60-70 (linguistics); 6 hours of literature at the 4000-level; 7 additional hours selected from courses in literature, language, or civilization.

Students whose primary interest is language must have the following courses (or their equivalent, with permission of the department): 3510-20 or 3610-20 (aspects or survey of literature, 8 hours); 3410 or 3420 or 3430 (intermediate composition and conversation, 3 hours); 4210 (phonetics, 3 hours); 4220 or 4230 (advanced grammar 3 hours); 6 hours selected from courses 3410-20-30 (intermediate composition and conversation), 4220-30 (advanced grammar), or 4250-60-70 (linguistics); 6 hours of literature at the 4000-level; 7 additional hours selected from courses in literature, language, or civilization.

With either of the above options, students may substitute Foreign Study (4101) for certain courses; students with special interests, such as comparative literature, may make certain substitutions with permission of the department.

Minor: Consists of 24 hours in courses numbered 3410 or above, including the following: 3510-20 or 3610-20 (aspects of survey of literature, 8 hours); 3410 (intermediate composition and conversation, 3 hours); 4210 (phonetics, 3 hours); 10 additional hours selected from courses in literature, language, or civilization. Students pursuing a minor are strongly advised to consult with a departmental adviser.

Courses in French in which English translation may not be counted toward either a major or a minor.

1510-20 Elementary French (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

1518-28 Honors: Elementary French (4, 4) Honors course for students of superior ability. 1518 not open to students who have taken French in high school. Freshmen are admitted on the basis of a diagnostic test or conference with the instructor, high school average, and performance on the ACT. This class will be held to a maximum of 15 so that each student may receive more attention. This class will cover the
normal French program for the first year, but will be enriched whenever possible. Students will be expected to spend only the normal amount of time in preparation. Those who find the course too difficult may easily transfer to a regular class. Potential majors and minors in French are urged to take this course.

4101 Foreign Study (1-16) See page 177.

4110-20-30 French Literature of the Seventeenth Century (3, 3, 3) Prereq: 2130 or equivalent.

4150 Theatrical French (1-3) Performance in one or more French plays. May be repeated for credit with permission of the department. Prereq: 2130 or equivalent and permission of the instructor.

4160-70-80 Advanced Conversation (2, 2, 2) Intensive training in prepared and spontaneous conversations. Subjects range from travel and current events to literature and aspects of national culture. Prereq: Completion of 9 hrs of courses on 3000-level.

4210-20-30 Phonetics and Advanced Grammar (3, 3, 3) Prereq: 2130 or equivalent.

4250 Introduction to Descriptive Linguistics (3) Phonetics and phonemics, morphology and syntax. Types of languages, linguistic groups, dialects and dialect geography. Application of descriptive linguistics-field linguistics, dialect, study; its practical use in learning languages and in language teaching. Introduction to transformational grammar. Prereq: 9 hrs of upper division courses in a modern or ancient language (exclusive of German and French 3000-20-30, courses in literature in translation, and general courses in Latin and Greek requiring no knowledge of these languages), or permission of the department. Same as Spanish, German, and Russian 4250.

4260 Introduction to Historical and Comparative Linguistics (3) Same as Spanish, German, and Russian 4260.

4270 Romance Linguistics (3) Development of classical Latin through vulgar Latin into major Romance languages. Same as Spanish 4270.

4310-20-30 French Literature of Eighteenth Century (3, 3, 3) Prereq: 2130 or equivalent.

4350-60-70 Medieval French Literature (3, 3, 3) Medieval works in modern French texts. Prereq: 2130 or equivalent.

4410-20-30 French Civilization (3, 3, 3) Prereq: 2130 or equivalent.

4510-20-30 French Literature of Nineteenth Century (3, 3, 3) Prereq: 2130 or equivalent.

4610-20-30 Readings in French Literature (3, 3, 3) For students who have completed 3130 or equivalent and have at least 3.0 on all university work. No credit toward a major or minor.

4640-50-60 French Literature of Sixteenth Century (3, 3, 3) Prereq: 2130 or equivalent.

4710-20-30 French Literature of Twentieth Century (3, 3, 3) Prereq: 2130 or equivalent.

GRADUATE
The Master's Program
See Graduate School Catalog for requirements.

5000 Thesis

5082 Non-Thesis Graduation Completion (3)

5011 Techniques in Literary Analysis (2)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5110-20-30 Old French (3, 3, 3)

5121 College Teaching of Romance Languages (3)

5151-61-71 Bibliography and Methods of Research (1, 1, 1)

5210-20-30 French Literature of Sixteenth Century (3, 3, 3)

5310-30 French Directed Readings (3, 3, 3)

5350-60-70 The Philosophes (18th Century) (3, 3, 3)

5410-20-30 The French Novel (3, 3, 3)

5450-60 Lyric Poetry of Nineteenth Century (3, 3)

5470 Baudelaire and the Symbolists (3)

5510-20-30 The French Drama (3, 3, 3)

5610-20-30 Trends in Contemporary French Literature (3, 3, 3)

5650-60 Advanced Syntax and Stylistics (3, 3)

5670 Problems in Romance Linguistics (3)

5710-20-30 Seminar in French Literature (3, 3, 3)

5910 Literary Criticism: Foundations of Romance Criticism (3)

Italian (584)

UNDERGRADUATE
Major: Consists of 36 hours in courses numbered 3210 or above, to include the following (or equivalents, with permission of the department): 3410-20-30 (advanced grammar, composition and conversation, 9 hours); 3510-20 (aspects of Italian literature, 8 hours); 9 hours of literature at the 4000-level; 10 additional hours selected from courses in literature, language or civilization. Students may substitute Foreign Study (4101) for certain courses; students with special interests, such as comparative literature, may make certain substitutions with permission of the department.

Minor: Consists of 24 hours in courses numbered 3210 or above, to include the following: 3410-20-30 (advanced grammar, composition, and conversation, 9 hours); 3510-20 (aspects of Italian literature, 8 hours); 7 additional hours selected from courses in literature, language, or civilization.

Courses in Italian literature in English translation may not be counted toward either a major or a minor.

1510-20 Elementary Italian (4, 4) Must be taken in sequence, 4 class meetings and 2 laboratory periods.

2510-20 Intermediate Italian (4, 4) Must be taken in sequence, 4 class meetings and 2 laboratory periods.

2610-20 Panorama of Italian Culture (4, 4) 2610—Survey of Italian culture from Roman era through the 17th Century. 2620—Survey of Italian culture in the 18th, 19th, 20th Centuries.

3000 Italian Translation (3) Development of linguistic skills necessary for satisfactory work in courses above 3000. Recommended for students who feel they would benefit from additional training beyond 2520 in basic skills of reading, speaking and writing Italian.

2110-20-30 Civilizations and Culture (3, 3, 3) Prereq: 2130 or equivalent.

3310-20-30 Italian Literature in English Translation (3-4, 3-4, 3-4) 3310—Sicilian School, the Florentine School, Dante, Petrarch, Boccaccio, Machiavelli, and the Roman School. 3320—From the Baroque through Nineteenth century, commedia dell'arte Vico Leopardi. 3330—Twentieth century, Carducci, Pirandello, Quasimodo, D'Annunzio, the Croce, Moravia. No change in credit hours after add dead line. Addition of 4 hours credit must present appropriate amount of extra work above that required for 3 hours.

3410-20-30 Advanced Grammar, Composition, and Conversation (3, 3, 3) Elective work, drills, and tapes. Prereq: 2130 or equivalent.

3510-20 Aspects of Italian Language (4, 4) Prereq: 2520 or equivalent. Recommended for literature majors.
4101-20 Italian Drama in English Translation (3-4, 3-4) 4101 — La commedia dell’arte and major works of Machiavelli, Metastasio, Alfieri, Goldoni. 4020-20 Twentieth-century theatre: operatic drama, the Grotesco, Pirandello, De Filippo, Frati. No change in credit hours after add deadline. Option of 4 hours credit must present appropriate amount of extra work above that required for 3 hrs.

4050-60-70 Dante and Medieval Culture (3, 3, 3) Readings and lectures in English for students majoring or minoring in other departments. Readings, reports, and term papers in Italian for students majoring or minoring in Italian. (Same as Comparative Literature 4050-60-70.)

4101 Foreign Study (1-16) See page 177.

4160-70-80 Advanced Conversation (2, 2, 2) Intensive training in prepared and spontaneous conversations. Subjects range from travel and current events to literature and aspects of national culture. Prereq: Completion of 9 hrs of courses on 3000 level.

4220 Petrarch (3) Prereq: 3130 or equivalent.

4230 Boccaccio (3) Prereq: 3130 or equivalent.

4330 History of Italian Language (3) Prereq: 3130 or equivalent.

4410-20-30 Literature of the Rinascimento (3, 3, 3) From Pulci to Tasso, the Quattrocento and the Cinquecento. Prereq: 3130 or equivalent.

4530 The Modern Novel (3) Prereq: 2130 or equivalent.

4540 The Modern Theatre (3) Prereq: 2130 or equivalent.

4610 Contemporary Theater (3) Prereq: 2130 or equivalent.

4620 Contemporary Poetry (3) Prereq: 2130 or equivalent.

4630 Contemporary Prose (3) Prereq: 2130 or equivalent.

GRADUATE

See Graduate School Catalog for requirements.

5011 Techniques in Literary Analysis (2)

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

5151-61-72 Bibliography and Methods of Research (1, 1, 1)

5160-20-30 Readings in Italian Literature (3, 3, 3)

5170-20-30 Seminar in Italian Literature (3, 3, 3)

Portuguese (811)

UNDERGRADUATE

Minor: A minor only is offered in Portuguese, consisting of 6 hours in the 3510-20 sequence (aspects of Portuguese literature) and 18 hours in the 4310-20-30 sequence (directed readings in Brazilian and Portuguese literature, a course of variable content which may be repeated for credit). Students may substitute Foreign Study (4101) for any of the above courses.

4150-20 Elementary Portuguese (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

4250-20 Intermediate Portuguese (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

3510-20 Aspects of Portuguese Literature (4, 4) Prereq: 2520 or equivalent. Recommended for literature majors.

4101 Foreign Study (1-16) See page 177.

4310-20-30 Directed Readings in Brazilian and Portuguese Literature (3, 3, 3) May be repeated with permission of instructor.

GRADUATE

5101 Foreign Study (1-12)

5102 Off-Campus Study (1-12)

5103 Independent Study (1-12)

Spanish (924)

UNDERGRADUATE

Major: Consists of 36 hours in courses numbered 3510 or above. Students whose primary interest is literature must have a minimum of 8 hours chosen from the following courses: 3510-20, 3610-20, or 3710-20 (aspects of survey of Spanish literature, or aspects of Spanish American literature, 8 hours); 3410 plus 3420 or 3430 (composition and conversation, 6 hours); 4210 (phonetics, 3 hours); 9 hours of literature at the 4000-level; 3 hours of civilization; sufficient additional hours selected from courses in literature, language, or civilization to fulfill the major requirement. Students whose primary interest is language must have a minimum of 8 hours chosen from the following courses: 3510-20, 3610-20 or 3710-20 (aspects of survey of Spanish literature, or aspects of Spanish American literature, 8 hours); 3410 (composition and conversation, 3 hours); 4210 (phonetics, 3 hours); 9 hours selected from courses 3420-30 (composition and conversation), 4220-30 (advanced grammar), or 4250-60-70 (linguistics); 3 hours of literature at the 4000-level; 3 hours of civilization; sufficient additional hours selected from courses in literature, language, or civilization to fulfill the major requirement. With either of the above options, students may substitute Foreign Study (4101) for certain courses; students with special interests, such as comparative literature, may make certain substitutions with permission of the department.

Minor: Consists of 24 hours in courses numbered 3410 or above, including a minimum of 8 hours chosen from the following sequences: 3510-20, 3610-20, or 3710-20 (aspects of survey of Spanish literature, or aspects of Spanish American literature, 8 hours); 3410 (composition and conversation, 3 hours); 4210 (phonetics, 3 hours); sufficient additional hours selected from courses in literature, language, or civilization to fulfill the minor requirement. Students pursuing a minor are strongly advised to consult with a departmental adviser.

Courses which are the equivalents of the foregoing may be substituted with permission of the department; but courses in Spanish literature in English translation may not be counted toward either a major or a minor.

4310-20-30 Elementary Spanish (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

There is no official prerequisite for students who have taken Spanish in high school. Freshmen are admitted on the basis of a diagnostic test or conference with the instructor, high school average, and performance on the ACT. This class will be held to a maximum of 15 so that each student may receive more attention. This class will cover the normal Spanish program for the first year, but will be enriched whenever possible. Students will be expected to spend only the normal amount of time in preparation. Those who find the course too difficult may easily transfer to a regular class. Potential majors and minors in Spanish are urged to take this course. Students who pass 1510 with a grade of B or higher may take 1528 instead of 1520.

2510-20 Intermediate Spanish (4, 4) Must be taken in sequence. 4 class meetings and 2 laboratory periods.

2518-28 Honors: Intermediate Spanish (4, 4) Honors course for students of superior ability in Spanish. Incoming freshmen are admitted on the basis of diagnostic test, high school average, and performance on the ACT. This class will be held to a maximum of 15 so that each student may receive more attention. Students will follow an enriched program with continuing emphasis upon speaking ability and with special emphasis on reading, including literary selections. Must be taken in sequence. Students who earn an A or B in 2528 automatically receive credit for Spanish 3000. Prereq: Spanish 1510-20, 1518-28, or equivalent.

2510-20 Panorama of Hispanic Culture (4, 4) 2610 — Peninsular Spain from Roman invasion through 19th Century, including Colonial period in Latin America. 2620 — Highlights of 20th-Century culture in both Latin America and Spain.

3000 Spanish Transition (3) Development of linguistic skills necessary for satisfactory work in courses above 3000. Recommended for students who feel they need additional training beyond 2520 in basic skills of reading, speaking and writing Spanish.

3010-20-30 Spanish and Spanish American Literature in English Translation (3-4, 3-4, 3-4) 3010 — Masterpieces of Classical Spanish Literature: Cervantes, realism and the picareque novel, religious mysteries, Golden Age Theatre. 3020 — Masterpieces of Twentieth-Century Spanish Literature: Unamuno, Lorca, Baroja, Ortega. 3030 — Contemporary Spanish American Fiction: Marquez, Borges, Fuentes, Asturias. No change in credit hours after add deadline. Option of 4 hours credit must present an appropriate amount of extra work above that required for 3 hours.

3410-20-30 Intermediate Composition and Conversation (3, 3, 3) Not offered for graduate credit.

3510-20 Aspects of Spanish Literature (4, 4) Prereq: 2520 or equivalent. Recommended for literature majors. Not offered for graduate credit.

3610-20 Survey of Spanish Literature (4, 4) May be taken in place of 3510-20 or 3710-20. Prereq: 2520 or equivalent.

3710-20 Aspects of Spanish American Literature (4, 4) May be taken in place of 3510-20 or 3610-20. Prereq: 2520 or equivalent.

4030 Masterpieces of Spanish Literature in English Translation (3) No foreign language credit.

4040 Spanish Drama in English Translation (3) No foreign language credit.

4050-60-70 Hispano-Arabic Literature and Culture (3, 3, 3)

4101 Foreign Study (1-16) See page 177.

4110-20-30 Spanish Literature of the Golden Age (3, 3, 3) The picareque novel; Cervantes, the Comedia.

4150 Theatrical Spanish (1-3) Performance in one or more Spanish plays. May be repeated for credit with permission of department. Prereq: 2130 or equivalent and permission of instructor.

4160-70-80 Advanced Conversation (2, 2, 2) Intensive training in prepared and spontaneous conversations. Subjects range from travel and current events to literature and aspects of national culture. Prereq: Completion of 9 hrs of courses on 3000 level.

4210-20-30 Phonetics and Advanced Grammar (3, 3, 3) Prereq: 2130 or equivalent.

4250 Introduction to Descriptive Linguistics (3) (Same as French, German and Russian 4250).
5670 Problems in Romance Linguistics (3)
5810-20-30 Spanish Lyric Poetry (3, 3, 3)
5910 Literary Criticism: Foundations of Romance Criticism (3)
6000 Doctoral Research and Dissertation
6210-20-30 Seminar in Spanish Literature (3, 3, 3)
6310-20-30 Seminar in Latin American Literature (3, 3, 3)

Russian
See Germanic and Slavic Languages.

Russian and East European Studies
See Cultural Studies.

Sociology (915)

Professors:
J.A. Black (Head), Ph.D. Iowa; D.J. Champion, Ph.D. Purdue; W.E. Cole (Emeritus), Ph.D. Cornell; L.E. Dotson, Ph.D. Vanderbilt; L. Ebersole (Vice Chancellor for Planning and Administration), Ph.D. Pennsylvania; W.B. Jones (Emeritus), Ph.D. Vanderbilt; J.B. Knox (Emeritus), Ph.D. Harvard.

Associate Professors:
D.M. Betz, Ph.D. Michigan State; D. Cielland, Ph.D. Michigan State; D.W. Hastings, Ph.D. Massachusetts; T.C. Hood, Ph.D. Duke; N.E. Shover, Ph.D. Illinois (Urbana); S.E. Wallace, Ph.D. Minnesota.

Assistant Professors:
S. Kurth, Ph.D. Illinois (Chicago); S.E. Norland, Ph.D. Iowa; R.G. Perrin, Ph.D. British Columbia; A.N. Sheskin, M.A. Boston; T.J. Weirath, Ph.D. Wisconsin (Madison).

Instructor:
D. Harris, M.A. Tennessee.

UNDERGRADUATE
Major: Consists of 36 upper-division hours in sociology. Eight lower-division hours in sociology are prerequisite to a major. The minor shall consist of 24 upper-division hours. Eight lower-division hours in sociology are prerequisite to a minor.

Social Work
Students contemplating entrance into the field of professional social work will have an opportunity to plan their upper division programs to this end. Suggested course offerings for students planning a social work career can be obtained from the Graduate School of Social Work catalog. The address and general information on the School are given on page 45.

Students who contemplate professional training in social work should discuss their upper division programs with the Knoxville campus representatives of the School of Social Work.


1510 General Sociology (4) Social origins, structures, forces, processes, and products.
1520 Sociology of Social Problems (4)
3010 Collective Behavior (4) Processual analysis of such: collective phenomena as crowd behavior, social epidemics, fads, fashions, popular crazes, and mass movements; nature of the public, functional analyses of public opinion; problems of democracy as viewed from standpoint of organizing collective action.

3030 Political Sociology (3) Sociological analysis of American political system. Attention given to consideration of concept of power, elitist-pluralist controversy, end-of-ideology debate, and related topics.
3130 Social Psychology (4) Social basis of human behavior; socialization; social status and social roles; personality; social adjustment.
3140 Deviance and the Social Order (4) Examination of relations between deviance and social order. Various types of social deviance considered, with focus on their structure, social factors related to process of becoming deviant, and consequences of deviant conduct.
3150 Sociology of Sex Roles (4) Sociological examination of the structure of current American sex roles utilizing various theoretical perspectives, e.g., role theory and bargaining. Development and effects of organized reactions to sex role expectations and social movements such as feminism are considered.
3160 Sociology of Medicine (4) Introduction to sociological approach to study of health and medicine. Emphasis on relationship of demographic characteristics to the prevalence of disease, organization of health care facilities and staff-patient relationships.
3220 The Family (4) Origin and etiology of the family; background of modern American family; the normal family; social changes and the family; social pathology of the family; reorganization and future of the family system.
3320 Sociology of Mass Communication (4) Sociological dimensions of mass communication and mass media, nature of mass communications organizations as bureaucratic structures, and effects of mass communication on social behavior are examined.
3330 Prejudice and Racism in the United States (4) (Same as Black Studies 3330.)
3340 Sociology of Poverty and Inequality (3) Factors contributing to conditions of poverty and social consequences of being poor. (Same as Black Studies 3340.)
3350 Social Stratification (4) Study of economic class, prestige, life style, and power hierarchies; causes and consequences of structured social inequality.
3410 Urban Environment (4) Introduction to urban environment includes: Emergence of the city; cities of New World; rise of metropolitan American urban society; social worlds within urban environment.
3420 Urban Problems (4) Crises and the urban conscience; urban problems and interventions; housing, urban renewal and neighborhood conservation; the urban poor, the disoriented and alienated; planning for urban youth; the urban elderly; the social and physical planning process; new towns.
3510 Juvenile Delinquency (4) Critical assessment of nature of the delinquency problem, major sociological causes and their implications for control, and administration of juvenile justice.
3610 Sociology of Occupations (4) Introduction to occupations and their relation to the individual and society; technology and occupations; unequal rewards and occupations; social organization and occupations.
3620 Occupations as Organizations (4) Occupations as interest groupings; their impact on work settings and the wider community.
3672 Religion and Society in Japan (4) (Same as Religious Studies 3672.)
3690 Sociology of Aging (4) The aged as social minority and subculture in society; role changes in middle age and in old age; significance of increase in proportion of aged in terms of employment, welfare, retirement, and political power.
3810 Sociological Theory (4) Survey and analysis of development of sociological theory from time of Comte to present.
3910 Introduction to Social Research (4) Scientific method applied to social phenomena; formulating testable hypotheses; techniques for collecting data; measuring social variables; interpreting research findings. Lectures and laboratory.

3920 Elementary Statistical Methods (4) Statistics used in social research; elementary descriptive techniques; measures of central tendency, dispersion; elementary statistical inference; tests of significance for parametric and non-parametric data.

4000 Special Topics (4) Student-generated course offered at convenience of Department upon student initiative. Scope of subject matter determined by students and instructor. Requires approval of Department. Elective credit only. Prerequisite determined by Department.

4030 Society and Law (4) General treatment of social origins and consequences of law and legal process. Particular emphasis is placed on problems of law and social change, and on structure and functioning of legal sanctions. Some attention is paid to law and law-like phenomena in formal organizations and primitive societies.

4102 Off-Campus Study (1-16) See page 177.

4103 Independent Study (1-16) See page 177.

4110 Population Problems (4) Demographic factors and social structure; trends in fertility, mortality, population growth, migration, distribution, and composition; population policy.

4120 Topics in Social Psychology (4) (Same as Psychology 4129.)

4130 Sociology of Punishment and Corrections (4) Traces development of correctional movement, develops a critical sociological perspective on contemporary correctional programs, and provides overview of evaluative research in corrections.

4310 Criminology (4)

4330 Urban Ecology (4) Examination of public, private, collective, and individual space. Classical school of ecology, its neo-classical revisers, social area analysis, and cognitive symbolic ecology emphasized.

4410 Educational Sociology (3) (Same as Education C & I 4410.)

4530 Community Organization (4) Structure; function; linkages; change and development and important community studies are reviewed and discussed. Emphasis on sociological analysis, not on implementation of change.

4540 Social and Religious Change (4) Critical review of historical and contemporary theories and methods employed in study of social change. Attention given both to macro and micro group change. (Same as Religious Studies 4540.)

4560 Formal Organization (4) Analysis of bureaucratization process, division of labor, delegation of authority, channeled communication under system of rationality.

4820 American Minority Groups (4) Minority groups and social structure in American society; analysis of intergroup relations with attention given to both past and present relationships of selected groups to broader society.

4930 Social Movements (4) Development, organization, and function of social movements; attention is given to ideology, leadership and organization of political, religious and other types of social movements.

4940 Sociology of Religion (4) Interrelationship of society, culture, and religion. (Same as Religious Studies 4940.)

4960 Tradition, Change and Modernity in Asia (4) (Same as Religious Studies 4960.)

4988 Honors: Sociology (4) Intensive study and research under faculty direction, including writing of senior thesis. Course credit may be split into two quarters. Candidacy is open only to majors who have shown a marked capability for independent study and have grade point averages of at least 3.0 in the College of Liberal Arts and 3.2 in the Department. Prereq: Senior standing.

GRADUATE

Standards for graduate majors and minors are prescribed by the Graduate School and by the Department. Students who do not have adequate preparation in sociology may be required to take additional courses at the undergraduate level prerequisite to graduate study.

The Master's Program

The general requirements for the Master's degree are given in the Graduate School Catalog. A detailed statement of requirements is given in the Department's graduate manual.

The Doctoral Program

General requirements for the degree of Doctor of Philosophy are described in the Graduate School Catalog. A detailed statement of requirements is given in the Department's graduate manual.

5000 Thesis

5040 Methodological Issues in Social Research (3)

5050 Seminar in Political Sociology (3)

5060-70 Special Social Investigation (3, 3)

5200 Seminar in Collective Behavior and Social Movements (3)

5210, 5420-30 Social Theory (3, 3, 3)

5220 Social Control (3)

5230 Seminar in Sociology of Medicine (3)

5240 Theory and Research in Human Migration (3)

5250 Selected Topics in Migration Research (3)

5310 Seminar in Methods of Sociological Research (3)

5320-30 Social Statistics (3, 3)

5520 Crime, Law, and Social Control (3)

5530 Seminar in Community (3)

5550 Seminar on Community Power (3)

5560-70 Field Research in Deviance (3, 3)

5580 Sociology of Mental Disorders (3)

5590 Social Differentiation and Stratification (3)

5620-30-30 Seminar in Occupations (3, 3, 3)

5640 Social Structure and Personality (3)

5670 Social Organization (3)

5720 Small Group Theory and Research (3)

5730 Seminar in Research Problems in Intergroup Relations (3)

5810 Seminar in Race and Culture (3)

5910 Urban and Regional Sociology (3)

5920 Seminar in Social Attitudes (3)

5940 Delinquency and the Social Structure (3)

5950 Seminar in Population Theory (3)

5960 Demographic Techniques (3)

5970 Sociology of Development and Modernization (3)

6000 Doctoral Research and Dissertation

6040 Experimental Research (3)

6050 Experimental Methods in Sociology and Social Psychology (3)

6070 Problems in Field Research (3)

6080 Research Problems in the Study of Social Groups (3)

6090-6100 Survey Design and Analysis (3, 3)

6120 Selected Topics in Deviance and Law (3)

6130 Seminar in Mass Behavior and Related Topics (3)

6140 Advanced Reading in Sociological Theory (4)

6150 Advanced Reading in Sociological Methods (4)

6160 Advanced Special Social Investigation (4)

6170 Cross-cultural Aspects of Human Fertility (3)

6180 Theory and Method in Human Ecology (3)

6190 Advanced Special Social Investigation (4)

6510 Advanced Issues in Criminological Theory (3)

6520 Sociology of Deviance (3)

6530 Sociology of Law (3)

6540 Readings in Criminology and Deviance (3)

6550 Advanced Studies in Community (3)

6610 Seminar in Formal Organization (3)

6710 Seminar in Class and Status (3)

6810 Advanced Studies in Social Psychology (3)

6840-50 Social Change (3, 3)

6940 Advanced Studies in Urban Sociology (3)

Spanish

See Romance Languages.

Speech and Theatre


Assistant Professors: R.S. Ambler, Ph.D. Ohio State; J.E. Buckley, Ph.D. Northwestern; R.L. Conville, Ph.D. Louisiana State; N.C. Cook, M.A. Alabama; M. Custer, M.F.A Wisconsin; B.V. Daniels, Ph.D. Cornell; S.L. Fish, Ph.D. Southern Illinois; L.W. Lester, Ed.D. Tennessee; R.R. Masburn, M.A. Tennessee.

Instructors: F.D. Julian, M.A. Tennessee; A.C. Juddaikis, M.A. Northern Illinois; S. Kennedy, M.A. San Francisco State.

UNDERGRADUATE

Major: The major, speech and theatre, offers three areas of concentration as follows: Concentration In Speech: Eight hours from Speech 1211-21, Speech and Theatre 1441 are prerequisite to a concentration which consists of eight hours from Speech 2021, 2311, (or 3551 by permission), 2331, 2331; thirty additional hours in speech courses numbered 2000 and above, twelve hours of which may be cognate areas approved by the department and twenty-four of which must be in courses numbered 3000 and above.

Concentration In Theatre: Theatre 1520-30 is prerequisite to a concentration which consists of Theatre 2111, 2211-21, 2231, 3252-53-54, twenty-four additional hours of theatre.
courses numbered 2000 or above, twelve hours of which may be in cognate areas approved by the department. Twenty-four hours must be earned in courses numbered 3000 and above.

Speech (943)

1211 Introduction to Rhetoric and Public Address

1211 Introduction to Rhetoric and Public Address (4) Major theories of communication from Plato to present; methods for describing and evaluating public address.

1221 Introduction to Speech Communication (4) Fundamental theories and practices with particular reference to interpersonal communication, persuasion, semantics, psycholinguistics, legal and ethical dimensions of communication.

2021 Voice and Diction (4) Voice production; attention to individual speech problems.

2311 Public Speaking (4) Basic principles of speech preparation and delivery.

2331 Argumentation and Debate (4) Recommended: 2311.

2341 Deliberation in Assemblies (4) Various techniques for coming to collective decisions; parliamentary procedure.

2351 Interpersonal Communication (4) Communications theory in its application to informal, face-to-face situations.

2410-20 Intercollegiate Forensics (1, 1) Supervised work in tournament debate. Prereq: Permission of instructor.

3011 Persuasion (4) Persuasive discourse; its psychological, sociological, and cultural dimensions.

3021 Group Communication (4) Communication theory in its application to small groups, especially discussion groups; Communication barriers, nonverbal communication, business communication.

3031 Nonverbal Communication (4) Exploration of nonverbal communication from human communication perspective, origins and research, usage and coding of nonverbal behavior, research strategies and theoretical approaches.

3410-20-30 Intercollegiate Forensics (1, 1, 1) Continuation of 2410-20-30 Prereq: Permission of instructor.

3541 Rhetorical Theory and Criticism (4) Survey of Western rhetorical theory; contemporary approaches to criticism of public address. Recommended: 1211.

3551 Advanced Public Speaking (4) Speech forms; principles and practice of speech composition.

4222 Advanced Argumentation and Debate (4) Prereq: 2331 or permission of instructor.

4481 Quantitative Research Methods in Speech Communication (4) Designing experiments; planning field studies; using statistical analysis.

4551 Southern Oratory (4) Historical and critical study of public address in the South.

4560 Rhetoric of the Women's Rights Movement (4) Historical and critical study of public address in campaign for women's rights from the 1830's to present.

4571 British Oratory (4) Historical and critical study of British public address.

4582 Public Discussion of Race (4) History and criticism of racial advocacy in America.

4591 Persuasive Uses of Imaginative Literature (4) Topics in social and political uses of novels, plays, and poems.

4811 Advanced Phonetics (4) Phonetic aspects of contemporary dialects of the English language. Prereq: Permission of instructor.

4911-21d History of American Public Address (4, 4) Colonial period to 1865. 4921-1866 to present.

4999 Colloquium in Speech Communication (1) May be repeated for credit.

Theatre (976)

1510 Introduction to Theatre (4) Theatre as experience; materials and techniques.

1520-30 Fundamentals of Play Production (4, 4) 1520-Play analysis and arts of performance (acting and directing); 1530—Arts of performance and physical production.

2111-21 Acting (4, 4) Readings, improvisations, and scene study; voice and movement for the stage; basic rehearsal techniques. Prereq: permission of instructor for 2121.

2211-21 Stagecraft (4, 4) 2211—Techniques of scenery construction, 2221—Fundamental methods of stage lighting. Crew assignments on major productions.

2231 Basic Stage Costuming (4) Costume history and its application to the stage; basic techniques in costume construction.

3121-22 Advanced Acting (4, 4) Prereq: permission of instructor.

3511-52 Major Productions (1-4, 1-4) Supervised work on departmental productions. Available for credit only to theatre majors or with consent of Department; Prereq: permission of instructor.

3513 Outdoor Repertory Productions (4) Supervised work on productions at Hunter Hills Theatre. Available only to members of summer company by permission of instructor.

3521-22 Introduction to Scene Design (4, 4) Design of stage lighting; elementary theory; problems in basic lighting practice. Must be taken in sequence. Prereq: 2211-21 and permission of instructor.

3522-54 Western History of the Theatre (4, 4, 4, 4) Drama in performance with particular emphasis in theatre architecture, scene design, and acting styles. 3522—Antiquity to the Renaissance. 3523—The European Theatre. 1650-1850. 3524—Modern Theatre.

3522-63 History of the American Theatre (4, 4) Development of the theatre as social institution in American life. 3522—From its beginnings to 1900. 3523—From 1900 to present.

3521-22 Introduction to Lighting Design (4, 4) Mechanics of stage lighting; elementary theory; problems in basic lighting practice. Must be taken in sequence. Prereq: 2211-21 and permission of instructor.

3541-52 Play Directing (4, 4) Must be taken in sequence. Prereq: 2211.

3511-22 Introduction to Costume Design (4, 4) Costume as expression of character on stage; the application of costume history to specific design projects. Prereq: 2221 or permission of instructor.

3433-34 Special Problems in Acting (4, 4) Advanced exercises in voice and movement; preparation of major role under performance conditions. Prereq: 3121-22 and permission of instructor.

4511-52 Major Productions (1-4, 1-4) Continuation of 3511-52. Available for credit only to theatre majors. Prereq: permission of instructor.

4513 Outdoor Repertory Productions (4) Continuation of 3513. Available only to members of summer company by permission of instructor.

4241-42 Advanced Scene Design (4, 4) Play interpretation through scenic means; setting as environment for dramatic action. Must be taken in sequence. Prereq: 3221-22 and permission of instructor.

4341-42 Advanced Lighting Design (4, 4) Relationship of light to setting in creating stage environment. Must be taken in sequence. Prereq: 3221-22 and permission of instructor.

4441-42 Advanced Play Directing (4, 4) Problems of play interpretation; directing period plays; preparation of a play for public performance. Must be taken in sequence. Prereq: 3451-52 and permission of instructor.

4541-42 Advanced Theatre Costume Design (4, 4) Advanced problems in costume design and construction; pattern drafting; draping. Prereq: 3511-12.

4751-52 Dramatic Theory and Criticism (4, 4) 4750: From Aristotle to Lessing. 4760: From Goethe to Sartre.

4951-52 Playwriting (4, 4) Prereq: permission of instructor.
Zoology (995)

Professors: J.C. Daniel, Jr. (Head), Ph.D. Colorado; D.L. Bumgardner, Ph.D. Oregon; J.G. Carlisle, Ph.D. Pennsylvania; A.C. Cole (Emeritus); A.H. Jones, Ph.D. Virginia; J.K. Liles, Ph.D. Ohio State; N. Gerganian, Ph.D. Wisconsin; R.F. Greit, Ph.D. Tennessee; B. Hochman, Ph.D. California; J.D. Oliver, Ph.D. Cornell; K.W. Jeon, Ph.D. London (England); A.W. Jones, Ph.D. Virginia; J.L. Liles, Ph.D. Ohio State; L.E. Roth (Vice Chancellor for Graduate Studies), Ph.D. Chicago; C.A. Shively, Ph.D. Michigan State; J.T. Tanner, Ph.D. Cornell; S.R. Tipton (Emeritus), Ph.D. Duke; G.L. Whitson, Ph.D. Iowa.

Associate Professors: H.M. Albright, II, Ph.D. Cornell; R.M. Babgy, Ph.D. Illinois; K.D. Burnham, Ph.D. Iowa; D.A. Ebner, Ph.D. Minnesota; J.L. Kennedy, Ph.D. Iowa; M.G. Whitehead, Ph.D. Indiana.

Assistant Professors: P.B. Coulson, Ph.D. Illinois; A.C. Eckertmam, Ph.D. Kansas; D.J. Fox, Ph.D. Johns Hopkins; M.A. Handel, Ph.D. Kansas State; A.M. Jungreis, Ph.D. Minnesota; J.A. MacCabe, Ph.D. California (Davis); M.L. Pan, Ph.D. Pennsylvania; S.E. Flechert, Ph.D. Wisconsin; G.L. Vaughan, Ph.D. Duke.

*Alumni Distinguished Service Professor.

UNDERGRADUATE

Prerequisites to upper division courses: Biology 1210-20-30 is a prerequisite for all upper division courses, with the exception of 3090 and 4940. Additional prerequisites are included with course descriptions. Courses numbered in the 4000's are no more advanced than those in the 3000's except as may be indicated by prerequisites.

Major: Consists of Biology 3110, 3120, 3130, 1600, 1610, 1620, and upper division zoology courses (except 3010-20-30), and 3 quarters of chemistry or biochemistry at the 2000 level or above. Of the 18 hours of upper division zoology courses a minimum of 6 hours must be at the 4000 level, including at least one laboratory or field course. Prerequisites to this concentration are: Biology 1210-20-30 or Zoology 1118-28 (Zoology 2920-30 may be substituted for Zoology 1118 or Biology 1220), and Chemistry 1110-20-30 or equivalent (20 or 21 hours altogether) must be completed by all zoology majors.

Minor: Consists of 24 hours of zoology, or zoology and biology, courses. (Zoology courses must be at the upper division level; but 2000-level biology courses may be used, e.g. Biology 2110, 2120, 2130.) Prerequisites to this concentration are Biology 1210-20-30 or Zoology 1110-20-30 or 1118-28 and Chemistry 1110-20-30.

Note: Certain zoology courses require organic chemistry or other prerequisites—Consult the catalog description for each course.

Many courses in this department are offered only in specified quarters. Students should plan in advance the proper sequence. Information regarding lower quarter course is to be offered is available in the Department Office.

1118-28-38 Honors: General Zoology (4, 4, 4)
Designed for selected students admitted on basis of performance on American College Testing Program (freshmen) or grade point average of 3.2 (sophomores, juniors, seniors). This course is offered only in Fall, Winter, and Spring. Stu (4, 4, 4) or equivalents are included. Biology 1230 should be substituted for Zoology 1128 by students who earn less than a B in 1118. It is a prerequisite for Zoology 1210-20-30.

2460-70-80 Human Anatomy and Physiology for Nurses (3, 3, 3) Fundamentals of human anatomy and physiology. 2 hrs and 1 lab.

2461-71-81 Human Anatomy and Physiology for Nurses (4, 4, 4) Same as 2460-70-80 except 2 hrs and 2 labs.


2520—Human genetics and embryonic development with emphasis on applied aspects of embryology and genetics. Does not satisfy a laboratory course requirement.

2920-30 Human Physiology (4, 4) Fundamentals of biology; principles of human physiology and anatomy. Must be taken in sequence. Offered Fall and Winter quarters. One year of college chemistry. 2 hrs and 2 labs.

3040 Natural History of the Vertebrates (5) Behavior, life history, phylogeny, and classification. 3 hrs and 2 labs or field periods.

3050 Comparative Vertebrate Embryology (5) Developmental morphology of selected vertebrates. 2 hrs and 3 labs.

3060 Comparative Vertebrate Anatomy (4) Anatomy of organ systems. Dogfish shark and cat used in laboratory. 2 hrs and 2 labs.

3071 Immunology (3) (Same as Microbiology 3071)


3080 Biology and Animal Affairs (3) (Same as Botany 3090).

3110 General Entomology (5) Introduction to insects; basic structure, development, behavior; classification of insect orders and representative families; interpretation of insect keys. Prereq: Biology 3130, or permission of instructor. 3 hrs and 2 labs.

3150 Invertebrate Zoology (5) Biology of invertebrates (except insects) with emphasis on ecology and behavior. Prereq: Biology 3130, 3 hrs and 2 labs.

3220 Physiology of Reproduction (3) (Same as Animal Science 3220)

3320 Histology (4) Study of animal tissues. Prereq: Biology 3120. 2 hrs and 2 labs.

3410 Bioethics (3) Relationship between biological discoveries and human values and discussion of selected dilemmas arising from new knowledge about medicine, behavior, resources, and technology.

3920 Hormones and Endocrine Function in the Human (4) Basic course in human endocrinology with emphasis on the practical diagnosis of hormone levels for analysis of glandular function and treatment of endocrine abnormalities. 3 lectures and 1 discussion. Prereq: A course in physiology.

4007-4010-11-12-13-14-15-16-17 Minicourse in Zoology (2, 2, 2, 2, 2, 2, 2, 2, 2) Selected, advanced topics in zoology, concentrated areas in time and subject matter. Consult departmental listing for actual topics offered. Prereq: As posted. May be repeated for credit.

4050 Developmental Biology (4) Experimental morphogenesis, fertilization, cellular interactions, hormonal effects and related topics with examples drawn primarily from invertebrates and vertebrates. Prereq: 3050. 2 hrs and 2 labs.

5650 Projects in Costume Design (3)
5890 Studies in Theatrical Production (3)
5912 Play Production in Secondary Schools (4)
5950-60-70 Studies in Dramatic Theory and Criticism (3, 3, 3)

Speech and Theatre (945)

1441 Introduction to Cinema (4) Development of motion pictures as a medium; film aesthetics; analysis and criticism of selected films.

2031 Introduction to Oral Interpretation (4) Art of reading aloud; development of interpretative techniques and their application to selected passages of prose, poetry and drama.

3651 Oral Interpretation of Prose Literature (4) Prereq: 2031 or permission of instructor.

3661 Oral Interpretation of Poetry (4) Prereq: 2031 or permission of instructor.

3671 Oral Interpretation of Drama (4) Prereq: 2031 or permission of instructor.

4101 Foreign Study (1-16) See page 177.

4102 Off-Campus Study (1-16) May be repeated for major credit to maximum of 12 hours. See page 177.

4103 Independent Study (1-16) May be repeated for major credit to maximum of 8 hours. See page 177.

4170-80-90 Film History and Theory (3, 3, 3) A study of the history of film in terms of content, form, and style. 4170: History. 4180: Exposition and persuasion. 4190: Experimental forms; films and other media.

4651 Theories of Oral Interpretation (4) Theories concerning the literary, psychological, communicative, and aesthetic approaches to the methods and techniques of oral interpretation.

4661 Production Techniques for Oral Interpretation (4) Problems in collection, adaptation, and presentation of literature.

GRADUATE

5000 Thesis

5002 Non-Thesis Graduation Completion (3)

5110 Introduction to Graduate Research in Speech and Theatre (3)

5120 Directed Reading and Research (3)

University Studies (984)

(Non-Departmental)

University studies deal with important contemporary topics which are sufficiently comprehensive to require study and attention of students and faculty from more than one college. They are open to all qualified members of the university community.

3010 Technology and Society (3) Interdisciplinary lectures and discussions concerning science and technology, their interaction with contemporary social and political institutions and their impact upon human values. May be repeated for credit to maximum of 8 hours.

4100 Energy Needs and Our Environment (3) Problems of present and projected energy resources and demands; economic, behavioral, legal, technical and environmental opportunities and constraints; regional impacts of energy production and consumption. Topical focus will change from quarter to quarter. May be repeated with approval of instructor.

Women's Studies

See Cultural Studies.
4110-20-30 Undergraduate Research Participation (2, 2, 3) Experience in active research projects under supervision of staff members. Prereq: Junior or senior standing and prior permission of instructor.

4140 Practicum in Zoology (1-3) Participation in practical application of zoology in community institutions, government organizations and industries. Approximately 5 hrs involvement per week. Prereq: Biology 3110, 3120, 3130 and senior standing.

4190 Mammalogy (4) Classification, evolution, distribution, reproduction, populations, and behavior. 2 hrs and 2 lab or field periods. (Not open to students with credit for 3190.)

4200 Ichthyology (5) Classification, collection and identification, distribution, life histories, and economics. Importance of fishes. Prereq: Biology 2130, or permission of instructor. 2 hrs and 2 lab or field periods. (Not open to students with credit for former 3200.)

4210 Cell Physiology (5) Development of modern concepts in cell physiology from point of view of information and control which examines kinetics and integration of cellular activities. Prereq: Cell Biology or any Physiology, and Organic Chemistry. Biochemistry recommended. 3 lectures and 1 lab.

4240 Animal Ecology (4) Environmental factors determining distribution and numbers of animals; intra-specific relations; problems and methods. Prereq: Biology 3130. 2 hrs and 2 labs.

4250 Comparative Animal Physiology I (3) Environmental physiology. Survey of physiological mechanisms and their relation to ability of animals to survive in diverse physical environments. Prereq: Biology 3120-30, 2 years of chemistry. 3 hours.

4259 Comparative Animal Physiology Laboratory I (1) Coreq: 4250. 1 hr.

4260 Comparative Animal Physiology II (3) Sensory, effector and integrative physiology. Prereq: 3080.

4269 Comparative Animal Physiology Laboratory II (1) Prereq: 3080 and permission of instructor. Coreq: 4260.

4280 Comparative Endocrinology (5) Comparative analysis of the physiology and morphology of endocrine glands in vertebrates and invertebrates. Their role and interaction in maintenance of the organism and its species. Prereq: 3080 or 3920. 3 hrs and 1 (3 hr) lab.

4290 Herpetology (4) Classification, distribution, life histories, collection and identification of amphibians and reptiles, primarily of local species. 2 hrs or 2 lab or field periods. (Not open to students with credit for 3210.)

4300 Ornithology (4) Morphology, physiology, behavior, reproduction, populations, evolution, field identification. 2 hrs and 2 labs or field periods. (Not open to students with credit in 3230.)

4310 Animal Cytology (4) Structure and function of cells and their components; emphasis on mitosis and meiosis. 2 hrs and 2 labs. Recommended: Biology 3110.

4320 Microtechnique (4) 3320 recommended. 2 hrs and 2 labs.

4369 General Genetics Laboratory (2) Mainly Drosophila experiments designed to illustrate basic principles of inheritance. Prereq: Biology 3110. 2 labs.

4380 Organic Evolution (3) Modern concepts of animal evolution. Prereq: Biology 3110.


4410 General Parasitology (4) Morphology, taxonomy, and ecology of parasitic worms and protozoa, with emphasis on host-parasite relationships. 3 hrs and 1 lab. Prereq: Biology 3130 or permission of instructor.

4430 Medical Entomology (4) Distinctive morphological features, distribution, life histories, and control of arthropods that parasitize man or serve as vectors of human pathogens. Prereq: Agricultural Biology 3210 or Biology 3130. (Not open to students with credit for 3430.)

4450 Protozoology (4) Morphology, taxonomy, and physiology of protozoa in relation to fundamental biological concepts. Recommended: Biology 3120. 2 hrs and 2 labs.

4610-20 Comparative Animal Pathology (2, 2) Abnormal morphological changes and their causes. 4610—Cell and tissue changes, 4620—Organ, organ system, and organism changes. Recommended: 3080, 3320, 3060.

4619-29 Comparative Animal Pathology (2, 2) 4619—Cell and tissue changes, 4629—Organ, organ system, and organism changes. Coreq: 4610-20.

4660-70 Limnology (4, 4) 4660—Effects of origin, age, and location of lakes on their physical and chemical nature. 4670—Lake communities, productivity and pollution. Prereq: Chemistry 1110-20-30 and Biology 3130, Botany 1110-20-30, and Physics 1210-20-30 recommended. 2 hrs and 2 labs (4660); 3 hrs and 1 lab (4670). Must be taken in sequence, except with permission of instructor. Not open to students with credit in 3650 or 4650.

4700 Arachnology (4) Biology of spiders, mites, scorpions, and relatives. Prereq: 3110 or 3150. 2 hrs and 2 labs.

4720 Comparative Animal Behavior (4) Methods and principles. (Same as Psychology 4720.)

4729 Comparative Animal Behavior Laboratory (4) Laboratory and field studies. Coreq: 4720 (Same as Psychology 4729.)

4810-20-30 Insect Morphology and Taxonomy (4, 4) 4810—Internal morphology of both generalized and specialized forms. 4820—Taxonomy of major orders. 4830—Taxonomy of minor orders and immature forms. Prereq for 4820-30: 3110, or permission of instructor. 2 hrs and 2 labs.

4940 Physiology of Exercise (4) Functions of body in muscular work; physiological aspects of fatigue, training, and physical fitness. Prereq: 2920-30 or 3080, 3 hrs and 1 lab. (Not open to students with credit for 3940.)

GRADUATE

5000 Thesis

5080 Graduate Research Participation (3)

5110-20-30 Special Problems (2, 2, 2)

5150 Zoological Bibliography (1)

5180 Fresh-Water Invertebrates (4)

5210 Plant Parasitic Nematodes (4)

5220-30-40 Advanced Vertebrate Physiology (4, 4, 4)

5260 Physiology of Hormones (4)

5270 Advanced Neuromuscular Physiology (5)

5280 Insect Physiology (4)

5290 Quaternary Problems (4)

5310-20 Seminar in Teaching of College Zoology (2, 2)

5350 Biometry (3)

5410 Advanced Parasitology (4)

5430 Advanced Medical Entomology (3)

5550 Advanced Ornithology (4)

5570 Animal Populations (3)

5610-20 Foundations of Radiation Biology (4, 4)

5630 Methods of Experimentation with Laboratory Mammals (3)

5660 Physiology of Development (3)

5670 Cellular Immunology (4)

5760 General Vertebrate Neuroanatomy (3)

5780 Radiation Physiology (4)

5820 Methods of Taxonomy (4)

5840 Aquatic Insects (4)

5860 Geographic Distribution of Animals (4)

5870 Insect Systemecology (4)

6000 Doctoral Research and Dissertation

6110 Seminar in Cellular Biology (2)

6140 Seminar in Immunobiology (2)

6210 Seminar in Physiology (2)

6310 Seminar in Cytology (2)

6350 Seminar in Developmental Biology (2)

6410 Seminar in Parasitology (2)

6510 Seminar in Genetics (2)

6610 Seminar in Ornithology (2)

6650 Seminar in Aquatic Biology (2)

6710 Seminar in Ecology (2)

6810 Seminar in Entomology (2)

6910 Seminar in Radiation Biology (2)
The School of Nursing at The University of Tennessee, Knoxville, was established in July, 1971, in response to a long-recognized and well-established need for nurses prepared at the baccalaureate level and as a part of a statewide comprehensive plan approved for The University of Tennessee system by its Board of Trustees and for the State by the Tennessee Higher Education Commission.

The program offered by the School of Nursing is fully accredited by the National League for Nursing. It combines the unique resources of the University with those of several cooperating health agencies in a manner which enables both faculty and students to become aware of and responsive to an evolving dynamic culture, rapid scientific and technological advances and changing concepts of health, of human beings and of society.

The baccalaureate nursing program has as its central focus and frame of reference human beings, society and health. It is based on the belief that nursing has equal concern for the prevention of illness, the promotion of health, and the care of the sick.

General education courses, Nursing courses and electives are organized in a manner designed to promote creative thinking and innovative approaches at both the theoretical and practical levels. General education courses are incorporated into the nursing curriculum at both lower and upper division levels. Certain aspects of general education, primarily in the natural and behavioral sciences, are prerequisite to any courses in the nursing major. Other supporting courses are taken concurrently with Nursing courses.

Since nursing is a humanistic science and an art, nursing courses provide theoretical content which draws heavily from the theories and principles of related sciences and disciplines. This content is organized, integrated and synthesized in a manner which promotes a comprehensive understanding of the life process from conception through senescence. In nursing practice, this knowledge and understanding is combined with intellectual judgments, practical skills and human compassion. Opportunities to develop this kind of expertise in a variety of settings and situations are integral components of all Nursing courses.

A broad base of general education, a thorough study of human behavior, emphasis on health maintenance and promotion and a strong family and community orientation are essential components of baccalaureate education in nursing. It is these characteristics which differentiate it from other types of basic nursing education.

Because of the expanding role of the professional nurse, the increasing complexity of health care delivery and the ever changing health needs of society, the goals of the program are to prepare graduates who are able to:

1. Assume beginning leadership positions in nursing in a variety of settings.
2. Work collaboratively with other health professionals.
3. Function as socially conscious and contributing citizens.

4. Pursue advanced education on either a formal or an informal basis.

GENERAL REQUIREMENTS:
In order to obtain a Bachelor of Science in Nursing Degree, 12 quarters of full-time study of their equivalent are required. Students may enroll in Nursing courses following successful completion of 90 quarter hour credits in prescribed general education courses. These courses may be taken at The University of Tennessee or at any accredited junior or senior college or community college. One hundred eighty-nine quarter hour credits must be successfully completed in order to be awarded the Bachelor of Science in Nursing Degree.

NOTE: Students are advised to consult the University's degree requirements as stated in the front section of this catalog as well as the requirements for the School of Nursing.

GRADING POLICY:
The Satisfactory-No Credit option is not permitted for any Nursing course.
The minimum acceptable grade for all courses in the nursing curriculum, other than electives, is a C; a course in which a grade of D or F is achieved may be repeated once. If a grade of D or F is achieved on the second attempt, the student will be required to withdraw from the program.

Any student who achieves a grade of D or F for more than two clinical Nursing courses will be required to withdraw from the program even if previous courses in which the grades of D or F were achieved have been repeated and a grade of C or better has replaced the D or F. Clinical courses are: 3010, 3150, 3210, 3330, 4220, 4250, 4420, 4500, 4760.

If a student receives an Incomplete in a required Nursing course the Incomplete must be removed before the student may enroll in any other required Nursing courses.

If a student's clinical laboratory performance for any Nursing course is deemed unsatisfactory, the grade for that course will be an F regardless of any grades related to the theoretical component of the course. If the unsatisfactory clinical performance is characterized by dangerous, inappropriate or irresponsible behavior,
behavior which actually or potentially places the patient’s or family’s welfare in jeopardy, the student will be required to withdraw from the program.

ADMISSION AND PROGRESSION PROCEDURES

1) Nursing students must achieve a course grade of C or better in all required lower division courses, exclusive of electives.
2) When the student has completed all required lower division courses, having met the above stated grade requirement, a petition for admission to upper division courses must be made to the Progression Committee in the School of Nursing. The Progression Committee will review the record of each student who has submitted a petition in order to verify that the student has successfully completed all lower division requirements.
3) The School of Nursing will then notify, in writing, those students who are eligible to begin upper division Nursing courses.

Student petitions for admission to upper division courses must be submitted to the Progression Committee during the spring quarter which immediately precedes the fall quarter in which they expect to enter the upper division. The deadline for submitting a petition is the drop deadline date for each spring quarter.

3) Students who expect to enroll in The University of Tennessee, Knoxville School of Nursing, once they have completed lower division requirements elsewhere, should contact the Student Advisement Coordinator at the UTK School of Nursing as soon as they begin their lower division courses. Transfer students who believe they have met lower division requirements should submit a petition to begin upper division courses as soon as they are admitted to the University. If the number of students qualified to begin upper division Nursing courses exceeds the number that can be accommodated during the fall quarter, the cumulative grade point average will be utilized to select those students who may enroll in upper division Nursing courses. Qualified students not selected will be notified of possible reapplication for progression during the next review period.
4) Transfer students who have been accepted by the University must complete all course requirements as identified in the School of Nursing curriculum. Transcripts will be evaluated on an individual basis. Students are free to take proficiency or challenge examinations in order to determine whether it is necessary for them to enroll in a course or whether they have met those course requirements in another way.
5) Registered nurses seeking a baccalaureate degree in nursing must also apply for admission to the University and must be accepted on the same basis as others. They must complete all prerequisites and all required courses identified in the nursing curriculum. They may also take challenge or proficiency examinations in required courses whenever these are appropriate and available.

COURSE LOAD

The maximum credit hours per quarter allowed for any student without special permission is 18.

BACHELOR OF SCIENCE IN NURSING CURRICULUM

The following curriculum leads to the Bachelor of Science in Nursing Degree. A minimum of 189 quarter hours of credit is required.

<table>
<thead>
<tr>
<th>Hours Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman</td>
</tr>
<tr>
<td>English 1510-20</td>
</tr>
<tr>
<td>Chemistry 1510, 1530</td>
</tr>
<tr>
<td>Psychology Electives</td>
</tr>
<tr>
<td>Math 1540</td>
</tr>
<tr>
<td>Sociology Electives</td>
</tr>
<tr>
<td>Electives</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sophomore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zoology 2920-30</td>
</tr>
<tr>
<td>Microbiology 2610</td>
</tr>
<tr>
<td>Anthropology Electives</td>
</tr>
<tr>
<td>Biology 3110</td>
</tr>
<tr>
<td>CFS 2110</td>
</tr>
<tr>
<td>&quot;Electives&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing 3010, 3020, 3110, 3320, 3410, 18</td>
</tr>
<tr>
<td>Nursing 3150, 3330</td>
</tr>
<tr>
<td>Nutrition 3210</td>
</tr>
<tr>
<td>Nutrition 3020</td>
</tr>
<tr>
<td>CFS 3420</td>
</tr>
<tr>
<td>&quot;Electives&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing 4220, 4250, 4490, 4600</td>
</tr>
<tr>
<td>Nursing 4250, 4490, 4960</td>
</tr>
<tr>
<td>Nursing 4580, 4760</td>
</tr>
<tr>
<td>Psychology 3150</td>
</tr>
<tr>
<td>&quot;Electives&quot;</td>
</tr>
</tbody>
</table>

TOTAL 189 hours

[At least 18 of the elective hours must be in Humanities courses]

Nursing (720)

Professor: S.E. Hart (Dean), Ph.D. New York.

Associate Professors: D.H. Goodfellow, M.S.N. SUNY (Buffalo); K.J.-Kant, Ph.D. Illinois; B.M. Reid, M.S.N. Columbia.

Assistant Professors: M.T. Boynton, M.S.N. Emory; K.P. Conlon, M.S.N. SUNY (Buffalo); C.H. Davidson, M.S.N. University of Florida; M.W. Davis, M.S.N. Emory; N.R. Hein, M.S.N. Medical College of Georgia; V.D. Henrichs, M.S.W. Tennessee; M.L. Jolly, M.S.N. Columbia University; M.F. Kolos, M.N. Vanderbilt; V.M. Kramer, M.S. Colorado; B.W. Lowe, M.S. Tennessee; J.N. Mozingo, M.S.N. Emory; D.R. Odele, M.S.N. Emory; H.E. Overton, M.P.H. Tennessee; M.A. Pearce, M.P.H. Tennessee; E.J. Rice, M.S.N. Emory; B.J. Riley, M.S. Ohio State; S.L. Sugr, M.S.N. Pennsylvania; J.W. Wagner, M.S.N. Yale.

Instructors: J.L. Creasia, B.S.N. Vermont; P.G. Droppelman, M.S. Tennessee; N.B. Helms, B.S.N. Mercy College; S.M. Hodson, M.S. Tennessee; D.H. Shoffner, M.S. Tennessee.

Lecturer: D.B. Stephens, M.S. Tennessee.

2710 Family Health Promotion (4) (Same as Nutrition 2710.)

3000 History and Philosophy of Nursing (3) Survey of the history of health care delivery and nursing practice. Examination of various philosophical systems which have had an impact upon nursing education and nursing practice.

3010 Nursing Process (6) Theory and related laboratory experiences necessary for the development of basic nursing skills. Includes exploration of the expanding role of the professional nurse, life process in man, the health-illness continuum, determinants and indices of health, and the principles underlying the more common skills associated with nursing practice. 3 hrs, 1 lab. For nursing majors only.

3020 Philosophy of Nursing (1) Overview of educational and practice trends in the area of health; roles and functions of the professional nurse in health care delivery system.


3150 Family Health Nursing I (6) Nursing needs of families in childbearing and childrearing phases of development. Principles of human growth and development and family dynamics. Laboratory experiences in a variety of clinical, community and home settings with focus on family health assessment with opportunity for planning, implementing and evaluating nursing care for women in various stages of uncomplicated pregnancy and for their newborn infants. 3 hrs, 3 lab. Prereq: 3010; Coreq: 3110. For nursing majors only.

3210 Acute Care Nursing I (6) Theory and clinical laboratory experiences related to nursing care of patients whose health problems require hospitalization. Physiological and behavioral deviations which underlie or are associated with the more common, relatively uncomplicated health problems of children and adults. Clinical laboratory experiences with opportunity to apply knowledge and skill to care of patients in new settings as well as to provide opportunities for the continuity of care for those patients and their families. 3 hrs, 3 lab. Pre req: 3010, 3110. For nursing majors only.

3320 Human Responses to Stress and Illness (3) Adaptive and maladaptive behavioral responses to stress with emphasis on the maladaptive; theoretical and clinical family responses. Course will cover a broad range of illness behavior from the sick role to severe psychopathology.

3330 Psychosocial Nursing (6) Nursing needs of patients and families whose primary health problems are psychosocial or behavioral. Equal emphasis on prevention, promotion and rehabilitation. Principles from the behavioral and developmental sciences are reinforced, expanded and modified. Laboratory provides opportunities to apply these principles in a variety of settings to the care of individuals and families with actual or potential behavioral health problems, 3 hrs, 3 lab. Prereq: 3010, 3110, and 3320. For nursing majors only.

3410 Children and Health (4) Theory and laboratory experiences related to systematic, comprehensive assessment of the child’s response to the potential levels of health status. Emphasis on normal growth and development, interrelationships of behavior with patients, children and family and the applications of health and illness and hospitalization. Coreq: 3010; 3110.

3710 Individual and Family Health Problems (4) (Same as Nutrition 3710.)

4220 Acute Care Nursing II (6) The more serious and complicated health problems requiring hospitalization. Analysis of physiological and behavioral deviations which underlie or are associated with more complex and critical illnesses. Laboratory experiences with opportunity to apply increasing knowledge and skill to care of acutely ill patient with more complex health problems as well as to provision of continuity of care for these patients and their families for 3 hrs, 3 lab. Prereq: All 3000-level nursing courses or their equivalent. For nursing majors only.

4250 Family Health Nursing II (4) Nursing needs of families in crisis. Further exploration of theories of human growth and development and family dynamics with emphasis on those pathological and behavioral deviations which produce critical and complex family health problems. Laboratory experiences to further the skills necessary for comprehensive family health assessment as well as to develop specialized skills necessary for providing quality nursing care to those patients and their families who are experiencing such health problems as complications of child bearing, congenital anomalies and developmental...
disorders. 2 hrs, 2 lab. Prereq: All 3000-level nursing courses or their equivalent. For nursing majors only.

4330 Nursing in the Specialties (2-4) Application of principles from behavioral, physical, social and nursing sciences to solution of nursing problems. Includes exploration of nursing intervention needed to maintain or restore homeostasis in clients experiencing selected physiological and/or behavioral deviations. Prereq: permission of instructor.

4420 Long Term Nursing (6) Nursing needs of patients with long term congenital, developmental, or other chronic health problems. Focus on development of knowledge and skills needed to achieve total patient and family involvement in rehabilitative process. 3 hrs. 3 labs. Prereq: All 3000-level nursing courses or their equivalent and Nursing 4220 and 4250. For nursing majors only.

4440 Scientific Inquiry in Nursing (3) Introduction to language of research, types of research design, methodological approaches, sampling, data analysis and significance of findings. Evaluation of existing and ongoing nursing research studies. Prereq: Psychology 3150, Nursing 4220, 4250 and senior standing. For nursing majors only.

4260 Nursing in the Community (6) Content and laboratory experiences with focus on health patterns, needs and problems of the community. Particular emphasis on the health assessment of small and large groups, comparison of variations in health needs and patterns within and between communities, involvement in preventive and promotive community health programs at the national, state and local levels. 3 hrs, 3 lab. Prereq: 4220 and 4250. For nursing majors only.

4660 Professional Nursing Seminar (3) Critical examination of legislative, legal, ethical, social and educational issues and trends which have immediate or long-range implications for professional nursing practice. Prereq: 4220 and 4250. For nursing majors only.

4760 Management of Health Care (6) Theories of administration, supervision, organization, management and leadership as they apply to the delivery of health care services. Emphasis on role of the nurse in health care management and delivery. Laboratory experiences to develop skills necessary to function as an effective member of the health team. 2 hrs, 1 lab. Prereq: 4220 and 4250. For nursing majors only.

4770 Comprehensive Health Assessment (4) Principles and theories underlying health screening of children and adults, including health history, interviewing and physical examination. Practicum included. 2 hrs and 2 labs. (4 hrs each). Prereq: all 3000-level nursing courses or their equivalent or permission of instructor.

4860 Independent Study in Nursing (3) In-depth study of some aspect of nursing in which student has developed special interest. Study is pursued independently, utilizing guidelines developed by the student with appropriate faculty guidance, supervision and evaluation. Prereq: 4220 and 4250. For nursing majors only.
Independent Departments

Department of Air Force Aerospace Studies (094)

Air Force ROTC Program

Professor of Air Force Aerospace Studies:
Colonel J. E. Hitshew (Head), M.A.
East Carolina.

Assistant Professors:
Major D. D. King, M.A., Central Michigan;
Capt. S. A. Morris, M. S., Mississippi State.

GENERAL INFORMATION

Any student may enroll voluntarily in Air Force ROTC at the same time as registration for other undergraduate courses. There is no active duty obligation resulting from enrollment in the first two years of AFROTC classes unless the student is on AFROTC scholarship.

AIR FORCE ROTC SCHOLARSHIP PROGRAM

Scholarships are available to qualified students who enroll in the four-year cadet program. These scholarships cover full tuition, all fees, and reimbursement for all required books. In addition, cadets are paid $100.00 per month during the entire period of the scholarship. Scholarships are awarded to cadets on a competitive basis for two through four years at all levels of the Air Force ROTC program, including college freshmen, sophomores, and juniors. High school seniors should contact their guidance counselors to apply for four-year scholarships not later than 15 December each year. Applicants for two-, or three-year scholarships should contact the Professor of Air Force Aerospace Studies on campus early in the academic year.

PURPOSE OF THE AIR FORCE ROTC

The Air Force ROTC Program is designed to qualify for commissions those college men and women who desire to serve in the United States Air Force. The program provides education that will develop skills and attitudes vital to the professional Air Force officer. Upon graduation from the University and the Department of Air Force Aerospace Studies, students are commissioned second lieutenants in the United States Air Force Reserve. Opportunities exist throughout the initial period of active duty for the graduate to receive a Regular Commission in the Air Force and to pursue commissioned service as a career.

UNIVERSITY CREDITS

The following credits are granted for Air Force Aerospace Studies work and are creditable toward a degree in some colleges. See respective PAS for further information.

Aerospace Studies 1000 series
(Freshman) —
6 quarter hours per year
Aerospace Studies 2000 series
(Sophomore) —
6 quarter hours per year
Field Training Academics (Sophomore) —
6 quarter hours per year
Aerospace Studies 3000 series (Junior) —
9 quarter hours per year
Flight Instruction Ground School
3 quarter hours
Aerospace Studies 4000 series (Senior) —
9 quarter hours per year.

COURSES AVAILABLE

The first two years (freshman and sophomore) of the Air Force curriculum are known as the General Military Course. The last two years of the curriculum (junior and senior) are known as the Professional Officer Course.

Flight training is offered free of charge to qualified pilot candidates who are senior AFROTC cadets. The cadet receives twenty-five hours of flight instruction. University credit is granted for the Ground School portion of the Flight Instruction Program.

Field Training is offered at Air Force bases across the country. Normally, this is the cadet's first extended exposure to an Air Force environment. It is here that the cadet receives junior officer and leadership development training. Also at this time, the Air Force has an opportunity to personally evaluate each cadet as a potential member of its officer corps. Four-year ROTC members are required to complete a four-week session and two-year applicants attend a six-week session, adding two intensive weeks of academics comparable to the academics taught in Aerospace Studies 1000 and 2000 courses. Credit is granted for this two-week period, provided the student registers for credit, attends five one-hour pretraining sessions before attending Field Training, and attends two one-hour seminars conducted during the fall quarter following completion of Field Training.

ELIGIBILITY FOR THE PROFESSIONAL OFFICER COURSE (FOR PURPOSE OF EARNING A COMMISSION)

(Junior and Senior Years)

All cadets enrolled in the Professional Officer Course (junior and senior years) of the Air Force ROTC (for purpose of earning a commission) must:

a. Have either completed the General Military Course (freshman and sophomore years), or the off-campus, six-week Field Training; or have the required amount of prior military service.

b. Have two academic years of college remaining (either graduate or undergraduate).

c. Execute a written agreement with the Government to complete the program, contingent upon remaining qualified and in school; and to attend the off-campus, four-week Field Training between the sophomore and junior years and to accept an Air Force Reserve Commission, if tendered.

d. Be selected by the Professor of Air Force Aerospace Studies and the President of the University or the duly authorized representative.

e. Meet certain specified age, mental, and physical requirements.

EXEMPTIONS FOR PREVIOUS ROTC, PREVIOUS ACTIVE MILITARY SERVICE, OR CERTAIN CIVIL AIR PATROL AWARDS

A student may request exemption from portions of the General Military Course on the following bases: (1) previous honorable active military service in any branch of the Armed Services; (2) at least two years of high school ROTC; or (3) holds certain awards in the Civil Air Patrol. Exemption will be on an individual basis, and no University credit is given for those hours or portions of the General Military Course exempted.
PAY AND ENTITLEMENTS
All cadets enrolled in AFROTC are furnished texts and uniforms by the Government through the Air Force Material Control Clerk, University of Tennessee. Enlisted personnel deposit $250.00 as security to the University against loss or damage of uniforms or equipment for which the University is accountable to the Government. At the completion of AFROTC, or when the student withdraws from the program with the exception of a nominal fee covering the cost of shoes, the deposit is returned to the student provided proper clearance for uniforms and equipment is obtained. Professional Officer Course cadets receive a subsistence allowance of $100.00 per month, not to exceed 20 months. In addition they are paid mileage to and from Field Training, plus pay commensurate with active duty rates. A four-week Field Training is normally required between the sophomore and junior years for those students enrolled in the four-year program. A six-week camp is required for seniors.

ACTIVE DUTY COMMITMENTS
Commissioned graduates going into nonflying duties will be required to serve four years of active duty. Those graduates going into flying assignments will be required to serve three years active duty after completion of flight training.

CONDUCT, ORGANIZATION, AND ADMINISTRATION
Air Force Regulations provide for the following: "For the effective conduct of instruction at civilian colleges and universities, coordination with general institutional regulations and arrangements and the approval of the head of the institution, the Professor of Air Force Aerospace Studies will be empowered to draft the rules and policies, relating to the organization, control, and training of the members of the AFROTC and the appointment, promotion, and reduction of Cadet Officers and Cadet Non-Commissioned Officers."

The Department of Air Force Aerospace Studies sponsors the following organizations:
(2) Angel Flight National auxiliary of the Arnold Air Society. Composed of selected cadets who are interested in enhancing the spirit, morale, and appearance of the Air Force ROTC Cadet Corps.
(3) Sabre Team. Provides interested cadets an opportunity to serve as honor guard for all official Cadet Corps functions.
(4) Air Commando Flight. Provides opportunity for additional military training for those cadets volunteering to participate.

Curriculum
1210-20-30 Air Force Aerospace Studies (2, 2, 2)
Surveys the missions, functions, and organization of the Air Force. Emphasis on the Air Force Commands, the environment in which the Air Force operates and how the Air Force works with the Army and Navy. Four foundations upon which study of the Armed Forces and the Air Force can build. 1 hr and 1 hr lab (Leadership Laboratory).

2210-20-30 Air Force Aerospace Studies (2, 2, 2)
Introduction to study of air power. Course is designed to present a general perspective to the student. Contact the Wright Brothers and continuing into the 1970's. 1 hr and 1 hr lab (Leadership Laboratory).

2240 Field Training (Academic Program) (1-4) Role of United States Military forces in contemporary world, with particular attention to United States Air Force. Emphasis on missions, mission, and supporting roles. Component forces of U.S. military power, organization of America's defense structure, policies of major powers, and perspectives on making of defense policy. Conducted at Field Training bases in the country. Approximately 60 class hrs.

3210-20-30 Air Force Aerospace Studies (3, 3, 3) Air Force leadership at junior officer level, including theoretical, professional, and legal aspects, with attention to communications skills. Military management functions of planning, organization, and techniques are covered. 3 hours and lab (Leadership Laboratory).

3240 Flight Instruction Ground School (Private Pilot) (3) Part of Air Force ROTC Flight Instruction Program and is designed to prepare student to operate safely as a pilot. A secondary objective is to enable student to pass FAA private pilot's written examination. Thirty-three hrs of classroom instruction. Seven subject areas covered: Preflight Facts—Acquaints students with factors affecting flight; Meteorology—Introduces student in learning weather phenomena affecting flight; weather information, and services available to pilots; Flight Computer: Navigation, and Radio Navigation—Covers the requirements to plan a cross-country, use of appropriate maps, charts, logs and regulations that must be known to operate safely and legally.

3250 Flight Instruction Ground School (Instrument) (3) Consists of audio visual aids and discussion covering fundamentals of flight (FAA) Instrument Flight Rules, Exam-O-Grams, Advanced Meteorology, planning and use of instrument charts for flight, instrument flying techniques and applications. Emphasizes safety in operation of small aircraft and provides necessary instruction for the FAA written examination for the instrument pilot's license. Prereq: 3240 or an FAA private license.

3255 Commercial Pilot (3) Audio and visual presentations with discussion of following topics: Advanced Flight Computer; Advanced Meteorology; Advanced VFR Navigation and Radio; Commercial Pilot Federal Aviation Regulations; Exam-O-Grams; Alcohol, Drugs, and Flight Effects; Oxygen, Altitude, and the Body; Weight and Balance; and Oxygen Systems. Course provides necessary instruction to take Federal Aviation Agency (FAA) written examination for Commercial Pilot's License.

4210-20-30 Air Force Aerospace Studies (3, 3, 3) Role and function of professional officer in a democratic society; socialization process, public attitudes, and value orientations associated with professional military service; requisites for maintaining national security forces; decision-making processes; historical, political, economic, and social constraints affecting formulation of U.S. defense policy; impact of technological and international developments upon strategic posture; emphasis on developing communicative skills. 3 hours and 1 lab (Leadership Laboratory).

Department of Military Science (688)
Army Reserve Officers' Training Corps
Professor of Military Science:
Colonel Daniel H. Bauer (Head), M.A. Illinois.

Assistant Professors of Military Science: Lieutenant Colonel J. W. Camp, M.B.A. Tennessee; Captain R. K. Groves, M.S. Tennessee; Captain M. S. H. James, M.S. Tennessee; R.M. Richey, M.B.A. Tennessee; Captain W. H. Tucker, M.B.A. Tennessee; G. Hamrick, M.S. Tennessee; J.R. Lape, M.S. Tennessee; V.C. Pangle, M.S. Tennessee.

UNIVERSITY ROTC PROGRAM
The University of Tennessee offers a voluntary ROTC program leading to appointment as an officer in the United States Army.

PURPOSE AND OBJECTIVE
The purpose is to provide professional education which will prepare students for appointment as commissioned officers in the Regular Army or the United States Army Reserve.

Objectives of the program are to provide students with an understanding of the fundamental concepts and principles of military art and science; to develop in them a basic understanding of associated professional knowledge, a strong sense of personal integrity, honor, and individual responsibility, and an appreciation of the requirements for national security; and to establish a sound basis for the students' future professional development.

ROTC draws young men and women for training from all geographical, economic, and social strata of our society as well as from the many educational disciplines required for the modern Army. The program insures that men and women educated in a liberal and broad spectrum of American institutions of higher learning are commissioned annually into the officer corps.

ARMY ROTC SCHOLARSHIP PROGRAM
The Army ROTC scholarship program offers financial assistance to outstanding young men and women in the Army ROTC program who are interested in serving in the Army as a career. Each scholarship provides for free tuition, textbooks, and laboratory fees in addition to a subsistence allowance of $100 per month for the period that the scholarship is in effect. Scholarships may be awarded for either one, two, three or four years. High school seniors should contact their guidance counselors early in November or December of their senior year to apply for the four-year scholarship. One, two and three-year scholarship applicants should contact the Professor of Military Science for further information. Certain other privately financed scholarships and grants are available to ROTC cadets.

UNIVERSITY CREDIT
The University of Tennessee grants the following credit for Military Science:
Military Science I—3 quarter hours (MS 1110-20)
Military Science II—6 quarter hours (MS 2110-20)
Military Science III—12 quarter hours (MS 3110-20-30)
Military Science IV—12 quarter hours (MS 4110-20-30)
Army ROTC Summer Studies—6 quarter hours (MS 4000)

BASIC ACADEMIC REQUIREMENTS FOR APPOINTMENT AS SECOND LIEUTENANT
Academic prerequisites for appointment as Second Lieutenant in the United States Army through the ROTC Program at The University of Tennessee, Knoxville, include the following minimum requirements. The sequence and selection of courses not specified will be determined by the adviser in concert with the head of the Department of Military Science. In cases where a student is pursuing a discipline which is narrowly restricted (excluding Military Science Core Curriculum) with few elective options, any...
conflict in scheduling or course selection will be resolved in favor of academic degree requirements.

**MILITARY SCIENCE CORE CURRICULUM**

**Basic Military Studies**
MS 1110 Fundamentals of Military Organization Leadership and Management........................................3
MS 2110-20 Applied Leadership and Management (3, 4, 3)..................6

**Advanced Military Studies**
MS 3110-20-30 Advanced Leadership and Management (4, 4, 4)...........12
MS 4000 Army ROTC Summer Studies 6
MS 4110-20-30 Seminar in Leadership and Management (4, 4, 4)...........12

TOTAL: 39 hours

**Substitution**
The following courses may be substituted for military courses with permission of adviser and ROTC department head:

- Industrial Management 4460; History 4380 for MS 3110
- Certain other upper division courses may be substituted with permission of PMS.

**OTHER ACADEMIC COURSES**
Since each degree field at UT is designed to provide a well-balanced education in diversified fields, no specific hour requirement is levied for courses outside the Military Science Core Curriculum.

**Freshman and Sophomore Years**
The University requirements for subjects in the field of communications (English grammar, composition, speech, etc.); physical, natural and biological sciences; humanities; social sciences; and applied sciences (engineering, mathematics, computer science, etc.) will satisfy the Army’s desire for its officers to have a well-rounded liberal education.

**Junior and Senior Years**
The cadet is expected to pursue at least one quarter of upper division work in each of two different divisional course areas (other than major) as follows: mathematics; computer science; mathematics; natural sciences; anthropology; economics; political science and international relations; history, psychology, sociology; foreign languages; management; urban studies; mass communications; or accounting.

Students seeking an Army commission are permitted to substitute military studies for non-technical electives, social studies, and/or humanities to satisfy degree requirements. This substitution is at the sole discretion of the deans of the separate schools and colleges.

**ENROLLMENT AND CONTINUANCE REQUIREMENT**
The general requirements for enrollment and continuance in the ROTC program are:

1. **Basic Course—MS I and II**
   a. Be a citizen of the United States.
   b. Be physically qualified.
   c. Be not less than fourteen years of age and have not reached twenty-three years of age at the time of enrollment.

2. **Advanced Course—MS III and IV**
   All cadets applying for enrollment in the Advanced Course Army ROTC who seek a Commission must:
   a. Have either completed the Basic Course, or taken a six-week Field Training Course, or have the required amount of prior military service.
   b. Have two academic years of college remaining (either graduate or undergraduate).
   c. Be enrolled as a full-time student, either at UT or at a nearby institution in a cooperative program.
   d. Meet military screening and physical requirements.

   Regularly enrolled students who meet the academic prerequisites and do not desire a commission may take individual courses as electives with the permission of the department head and their academic adviser.

**ADVANCED MILITARY STANDING FOR MILITARY TRAINING**

On the basis of previous honorable active duty military service in any branch of the Armed Services, or participation in the Junior ROTC Program at Secondary Schools, a student may request exemption from portions of the Basic Course. Exemption allowed will be determined on the merit of academic adviser.

**PROFICIENCY EXAMINATIONS**
Students may apply for proficiency examinations in Military Science 1110, 2110 and 2120. These examinations are offered mainly for graduates of the 6 weeks of intensive training at the Basic Camp at Fort Knox, Kentucky. A student applying for a proficiency examination should present evidence that he or she has developed those abilities and attitudes expected of a student who has taken the course involved. The application must be approved by the department head.

**EMOLUMENTS**
All students enrolled in the Army ROTC program are furnished certain texts and uniforms by the Army through the Military Property Officer at UT. Students enrolled in the ROTC Advanced Course receive an allowance of $100 per month during the academic year. While attending the ROTC summer studies, each cadet receives approximately $460.00 plus meals, clothing, and requisite special equipment.

**SELECTIVE SERVICE STATUS**
The Selective Service laws provide for certain deferments (draft exemption) for students seeking a commission in the Army through the ROTC curriculum.

**COURSES AVAILABLE**
The curriculum of the Army ROTC program is designed to qualify the cadet for appointment as an officer. Selection for assignment to the various branches of the Army is based upon:

- a. The personal interests of the cadet.
- b. The major course of study.
- c. Academic accomplishment.
- d. Leadership potential.
- e. The needs of the Service.

Under this system a cadet may be commissioned for which he or she is qualified and in which a need for officers exists. After graduation and commissioning, the officer will attend a service school for further specialized military training which will qualify him or her for the Branch to which he or she is assigned.

Flight training, which includes 35 hours of ground instruction and 35 hours of flight instruction, is offered to physically qualified senior ROTC cadets. The cadet may qualify for a Federal Aviation Agency approved private pilot’s license upon successful completion of the flight training course. This program is offered at no cost to the cadet.

**Curriculum**

1110 **Fundamentals of Leadership and Management**
(3) Development of American military institutions, policies, experiences and traditions in peace and war from colonial times to present. Historical examples of effective and ineffective leadership and application of principles of war. Practical exercise in leadership development.

2110 **Applied Leadership and Management**

2120 **Applied Leadership and Management**
(4, 4) Contemporary world scene and impact on the military. Planning, preparation, and presentation of briefings and continued development of leadership skills through practical exercise. Discussion of ROTC Advanced Course. Prereq: 2110.

3110-20-30 **Advanced Leadership and Management**
(4, 4) Applied leadership to include operation of the military team, electronic communications, land navigation, small unit leadership and internal defense/development. Two field trips. Leadership Laboratory: Philosophy of organization and operation of military in tactical and administrative roles. Prereq: 2110.

4000 **Army ROTC Summer Camp**
(6) Six-week encampment (forty-four hours of instruction are scheduled each week) is a prerequisite to commissioning and normally scheduled upon completion of 3130. Camp is conducted at an Army installation with instruction presented by ROTC faculty from colleges and universities. Course of instruction is an extension of leadership and management curricula. Prereq: 3130.

4110 **Theory and Dynamics of the Military Team**
(4) Organization and management of division military team, development and function of military staff and coordination and planning of the military team. Leadership Laboratory: Staff and Tactical Planning, presentation of briefings, preparation, execution and supervision of plans. Prereq: 4000 or permission of instructor.

4120-30 **Seminar in Leadership and Management**
(4, 4) Analysis of leadership and management problems involved in unit administration, military justice, Army Readiness Program, and officer-enlisted relationships. Leadership Laboratory. Prereq: 4110.

4140 **Flight Instruction**
(6) Flight and ground instruction including fundamentals of air discipline, solo, dual, basic instrument and cross-country flying, meteorology, aerial navigation and radio procedures. Prereq: Enrolled in 4110 or permission of Department Head and physically qualified according to Army standards.
Division of Continuing Education

Vice President for Continuing Education:
Charles H. Weaver, Ph.D. Wisconsin
Assistant Vice President for Continuing Education:
C.W. Hartsell, Ed.D. Tennessee

The Division of Continuing Education is responsible for the operation of all statewide continuing education programs, both on campus and off campus. The Division is concerned with policies and programs required for effective offering of educational opportunities, including attainment of college-level degrees, to qualified students of all ages and walks of life who pursue knowledge outside the traditional on-campus setting. All continuing education programs of the University are coordinated through the Division.

Information concerning continuing education programs of the various campuses is set forth in the respective catalogs. Information on continuing education programs of The University of Tennessee, Knoxville, is given on page 92 of this catalog.

Joint University Center (UT/MSU)
Coordinator:
J.A. Rhodes, Jr., Ph.D. Georgia State

The Joint University Center is administered cooperatively by The University of Tennessee and Memphis State University, and the Division has coordinative and developmental responsibilities only.

Center for Extended Learning
Director:

Associate Directors:

Assistant Director:
B.W. Wallace, M.S. Tennessee.

CLEP Open Center: Administers College Level Examination Program tests each month.

College Credit for High School Seniors: Coordinated in cooperation with the State Board of Education.

Conferences: For specific clientele statewide.

Independent Reading: The student should contact the academic department for the desired reading course and then register for credit through the CEL.

Independent Study: Extends instructional services of the University from all campuses to citizens of the state. Courses may be started at any time.

College Credit Courses: The same courses with the same instructors as in resident classes, offering full degree credit.

College Entrance Courses: To remove entrance deficiencies or to complete high school requirements.

Non-Credit Courses and Certificate Programs: In areas of general interest and in technical, business, and professional fields.

Statewide Media Programs: Courses for credit by cable and open-circuit television, radio, and newspapers.

Undergraduate Cooperative Education Program: For students desiring to work alternate quarters while going to school.

For information on enrollment, costs, books, and credit, write: Center for Extended Learning, 447 Comm. & Univ. Ext. Bldg., The University of Tennessee, Knoxville, Tennessee 37916. Telephone: (615) 974-5135.

Head Start State Training Office

Director:
L.C. Biggs, M.S. Wisconsin.
Assistant Director:
M.S. Griesemer, M.S. Ohio State.
Coordinator:
S.H. Sawyer, M. Ed. Winthrop.

Training Officers:
B.A. Cherwin, B.S. Tennessee; P. McElhiney, B.S. Tennessee at Martin; S.L. Hunter, M.S. Georgia State.

Nutrition Consultant:
M.C. Rose, B.S. Tennessee Tech.

Coordinator, Supplementary Training Program:
V.H. Galyon, M.S. Tennessee.

Research Associate, Competency Program:
W.J. Moore, M.S. Tennessee.

The State Training Office of Head Start is a program of services to the twenty area Head Start Programs in Tennessee. The services include organizing training programs for personnel of the various local programs, development of special workshops, publication of a newsletter, and organizational work with parents of children in the Head Start program. This office provides training through the coordination of Head Start Supplementary Training and the State Training Office grants.
Library Services

Director:
D.J. Harkness, M.A. Columbia.

This is a statewide service, administered by the system Division, and has four major facets.

Package Library and Book Services provide material for use by clubwomen, teachers, librarians, and other individuals in preparing talks and papers and in doing special study and reference work. Books from the Extension Library and the University Library are loaned to individuals within the state and to students taking courses by correspondence. Study club outlines, bibliographies, suggestions for club yearbooks, reading lists, and information-reference services are provided.

Club Program Service includes a series of program manuals on historical, literary, and bibliographical subjects designed to help clubwomen, teachers, and librarians in their work and individuals in their reading and study in informal adult education.

Drama Loan Service makes it possible for directors of drama in schools, colleges, universities, Little Theatres, and church drama groups to borrow copies of one-act and three-act plays and material for special days for reading and examination. Information on sets, costumes, and the original Broadway productions, along with material on playwrights, actors, and actresses, is also available.

School Program Service includes aids to teachers, librarians, and directors of speech and drama through package libraries, drama loans, and production aids.

Publications

Publications are a direct means of extending to Tennesseans the information resulting from studies by University departments and various extension materials designed for general enrichment of civic, cultural, and economic understanding. The University of Tennessee Continuing Education Series is used as an outlet for these materials. A list of available titles, most of them free to Tennessee residents, may be had upon request.

Radio Services

Director:
R.A. Shirley, M.A. Tennessee.

Associate Director:
N.L. Dryer, B.M. Indiana.

Staff:
J.C. Adkins, M.S. Tennessee; J.A. Chasteen; G.D. Francis, B.S. Syracuse; W.C. Hauser, B.A. New Mexico; D. Linetback; W.R. Stagg, S.D. Williamson, Jr., B.M. Tennessee.

This department conducts an extensive statewide program of adult education and information by radio, offering hundreds of different cultural and educational experiences. Its activities may be grouped into three categories.

1) WUOT, the University's 100,000-watt stereo station, broadcasting nineteen hours a day every day of the year, with a high quality and varied program of music, public affairs, discussion, drama, and documentaries from local, state, national, and international sources. The station is a member of the National Public Radio Network.

2) A network of over 150 Tennessee radio stations which provide without charge the time for over 22,000 quarter-hour programs on subjects of public interest, with production, duplication on audio tape, and distribution accomplished by the department. Its close contact with all broadcasting, and its staff and facilities equip the department ideally for work with the other campuses in the production, duplication, and distribution of audio materials for educational use. It will upon request assist all of the campuses in communications development.

3) A technical service which includes highspeed duplication of reel-to-reel or cassette audio tapes for University departments, recording conferences and workshops, audio consulting, and educational radio consulting.

Teaching Materials Center

Director:
J.T. Benton, M.S. Tennessee.

This department provides educational films for the public schools, colleges, churches, civic clubs, and other interested organizations on a wide variety of subjects, ranging from agriculture to technical material on the space age, and also films for industrial use. Film councils throughout the state encourage the use of these materials for forum discussions and general adult education. An advisory service on effective film use is also provided by the department. Films, equipment, and other services are made available to the academic faculty for classroom instruction and experimentation and educational films are provided for the students both on and off campus for student teaching, previews, and special projects.

Television Services

Director:
F.A. Lester, M.A. Tennessee.

Assistant Directors:

Producers:
S.H. Gordon, B.S. Tennessee; W.P. Wilson, B.S. Tennessee.

Television services include the complex closed-circuit administration and production work which results in many lower division resident classes being taught to some 8000 students by television on the campus; the production of 196 half-hour programs each year on WSKJ-TV, the State Department of Education station in East Tennessee; and instruction for three resident courses in broadcasting for the College of Communications. The department jointly administers an off-campus secondary school accelerated entrance program by television tape and the Video Tape Electrowriter Remote Mode program of graduate studies in engineering.

Title I, Higher Education Act of 1965 (State Agency)

Director:
P.R. Martin, Jr., A.B. Western Carolina.

The Governor of Tennessee has designated The University of Tennessee as the State Agency to administer the Statewide Community Service and Continuing Education Program under Title I of the Higher Education Act of 1965. Within the University the State Agency for Title I was established to administer this adult education program. The Community Service and Continuing Education Program under Title I authorizes the allotment of federal funds to the states for the purpose of strengthening community service and continuing education programs of colleges and universities in order to assist people in the solution of community problems, with particular emphasis on urban and suburban problems. The Governor and the President of UT have jointly appointed a 16-member State Advisory Council for Title I to work with the State Agency in implementing this program. This Council is composed of leaders from higher education, business, government, and the community.

Through the Tennessee State Plan and annual program amendments, the State Agency for Title I, with the advice of the Advisory Council, establishes priorities among problem areas, approves all project proposals from colleges and universities, and allocates available funds to qualified institutions of higher education.
The University Library

Donald R. Hunt, Director
Gene M. Abel, Associate Director/Public Services
Susan Brynteson, Associate Director/Technical Services
George W. Shipman, Associate Director/Administrative Services

The books, periodicals, non-print and any other materials contained in the 6 UTK Library units are available to all students, faculty and staff of The University of Tennessee, Knoxville. Included among the holdings are 1,280,388 books, 763,724 microforms, 3,864 audiotapes, 795 slide carousels, 435 videotapes, 4,547 phonodiscs, 1.8 million manuscripts, and various ephemeral materials.

The library in its 6 locations is open to all students and faculty, regardless of their fields of study. The James D. Hoskins Library at 1401 West Cumberland is the main library where administrative and technical services offices are located. The dictionary catalog, listing the library holdings for the entire campus, is in Main, as are the general and research collections, comprehensive reference, interlibrary services, documents, 4000/5000-level reserves, newspapers, non-print materials, and Special Collections, the last a repository of local and regional source materials.

The John C. Hodges Undergraduate Library, on Volunteer Boulevard at Andy Holt Ave., has a limited collection of 150,000 volumes selected to meet the needs of students in undergraduate courses. Reserve materials for 1000-3000 level courses are available in this library as is a large collection of audiotapes, slides, and video-cassettes.

Other libraries serving specialized areas are: Agriculture-Veterinary Medicine in Morgan Hall, Law in the Taylor Law Building; Music in the Music Building; and Science/Engineering in Dabney-Buehler.

The libraries are administered by a director, three associate directors (for public, technical, and administrative services) and a number of department heads. Questions and comments are invited in person or through the suggestion boxes located in each library. Continuing evaluation and building of the collections is the responsibility of the Collections Development Librarian. While most materials are selected by faculty, recommendations for purchase are invited from all students and staff.

Copies of Your Libraries, the library handbook for students and faculty, are available at all libraries.
Computing Center

Gordon R. Sherman, Director
Asa O. Bishop, Jr., Associate Director
Martha F. Bowen, Associate Director
Timothy P. MacKenzie, Assistant Director

Faculty Associates
Professor:
G.R. Sherman (Director), Ph.D. Purdue;
R.E. Cline, Ph.D. Purdue.

Associate Professor:
A.O. Bishop, Jr., Ph.D. Clemson.

Assistant Professor:
D.W. Straight, Ph.D. Texas.

The University of Tennessee Computing Center (UTCC), the largest computing facility in The University of Tennessee system, provides computing facilities and services for the needs of the University's teaching, research, public service, and administrative activities. In particular, UTCC maintains close contact with the UT academic community by supporting research and instructional users with professional computer staff.

UTCC is principally located in the Stokely Management Center and in Andy Holt Tower. From the Stokely location, UTCC supplies computing services to all campuses in the UT system through job entry facilities located on each campus. At UTK, UTCC maintains five job entry stations for batch work and six sites for interactive computer work.

UTCC's equipment consists of an IBM 360/65 and a DECsystem-10 which are used for research, instruction and administrative computing work. UTCC also maintains an IBM 360/40 which is used exclusively for administrative work. The IBM 360/65 has 2.75 million bytes of memory. The DECsystem-10 is a 1080 configuration with 256K words of memory.

UTCC supports remote job entry stations (card reader/line printer) with the IBM 360/65-DECsystem-10 combination and a CalComp plotter. The IBM 360/65 runs under OS/360 MVT with HASP II. The DECsystem-10 runs under the TOPS-10 Monitor. The time sharing system supported by the two machines includes ATS/360, Coursewriter III, APL, FORTRAN, BASIC, COBOL, Assembler language, and other special purpose application programs.

UTCC publishes a User's Guide which describes the use of the IBM 360/65 and policies and procedures and the DEC-system-10 Programmer's Guide, which is a general handbook for the use of the DECsystem-10. The two guides are available at the UT Book and Supply Store. UTCC also publishes a monthly Newsletter which announces systems, equipment and procedural changes and contains other items of interest to the user community. Program writeups and special user's guides are also published.

UTCC periodically offers intensive training seminars of several days duration in computer utilization on the IBM 360/65 and the DECsystem-10. These seminars are planned primarily for faculty, staff and graduate students who use or plan to use UTCC facilities. UTCC offers non-credit short courses each quarter in topics such as programming languages and special purpose programs. These courses are announced in the Newsletter and in the UT Notes section of the UT Daily Beacon.

Computing services can be requested via the Request for Services form available from the business office in the Stokely Management Center. All users of UTCC facilities are assigned a consultant to provide user assistance.
Public Service

Vice President for Public Service:
C.E. Smith, Ph.D. George Peabody
Associate Vice President for
Public Service:
A.B. Biscoe, Jr., Ph.D. Florida

Institute for Public Service

Executive Director:
R.S. Hutchison, M.B.A. Chicago
Associate Director:
L.R. Rogers, B.S. Tennessee.
Manager of Information Services:
T.B. Ballard, B.S. Tennessee.
Manager of Request-for-Service System:
W.S. Evans, B.S. Tennessee.
Business Manager:
G.W. Staskie.
Director, Emergency Training:
Harry V. Price, M.S. Tennessee.

The Institute for Public Service was established in 1971 within the office of the Vice President for Urban and Public Affairs. The purpose of the Institute is to coordinate and promote public service activities throughout the University system, excluding services provided through the Institute of Agriculture.

The basic goal of the University public service effort is to bring to the citizens of Tennessee—their business, their industry, and their governments—the problem-solving capabilities uniquely embodied within their statewide university system.

Public service at The University of Tennessee includes all services offered to those outside the University, including teaching in certain non-degree situations, technical assistance, and applied research which is conducted specifically at the request and for the benefit of non-University organizations in Tennessee.

The Institute provides: (1) a system-wide focal point for urban and public services; (2) a means to coordinate the various system-level public service activities; and (3) an organizational base for communication and program development that relates to both outside service clientele of the University and the campuses of the University system.

The Institute is headquartered in Knoxville and maintains regional offices in Chattanooga, Cookeville, Jackson, Johnson City, and Nashville.

The Institute is comprised of the system-level public service operations listed below.

County Technical Assistance Service

Executive Director:
J.H. Westbrook, Jr., B.S. Tennessee.
Assistant Director for Legal Services:
T.W. Graham, J.D. Tennessee.
Assistant Director for Administration:
T.D. McNulty, M.A. Austin Peay State.

Legal Specialists:
W.C. Mcintyre, J.D. YMCA Law School; J.D. Mayo, J.D. Tennessee.

Senior Law Enforcement Consultant:
G.L. White.

Law Enforcement Consultant:
S.F. Glaser, B.S. Tennessee.

Financial Specialist:

Engineering Specialist:
C.R. Phebus, M.S. Vanderbilt.

Government Research Analyst:
W.E. Bragg, M.P.A. Middle Tennessee State.

Communications and Publications Specialist:
L.D. Beach, B.A. University of the South.

Special Projects Coordinator:
M.J. Frank, B.A. Tennessee.

County Field Advisors:

The County Technical Assistance Service was established by the Board of Trustees at the 1973 mid-year meeting and began operation September 1, 1973. Establishment of the Service was authorized by the 88th General Assembly for the purpose of providing "studies and research in county government, publications, educational conferences and attendance thereof, and to furnish technical, consultative and field services to counties of the state in problems relating to fiscal administration, accounting, tax assessment and collection, law enforcement, improvements, and public works, and in any and all matters relating to county government. This program shall be carried on in cooperation with and with the advice of counties in the state acting through the Tennessee County Services Association and its Board of Directors, which is recognized as their official agency or instrumentality."

The Service is headquartered in Nashville, with regional offices in Chattanooga, Cookeville, Jackson, Johnson City, and Knoxville.

Municipal Technical Advisory Service

Executive Director:
V.C. Hobday, Ph.D. Syracuse.
Assistant Director:
J.P. Hartman, M.P.A. Tennessee.

Specialist Consultants:
J.M. Crabtree, Jr., B.S. Tennessee Tech (Personnel); J.W. Crawford, B.A. Miami (Personnel); J.A. Fitzgerald, B.A. Memphis State (Police); W.K. Jones, B.S. Tennessee Polytechnic (Finance and Accounting); J. Kersh, B.S. Tennessee (Municipal Information); F.E. Kirk, B.S. in C.E. Southern Methodist (Public Works); J.H. Leuty, B.S. Tennessee Polytechnic (Finance and Accounting); A.C. Lock, Jr., B.S.C.E. Oklahoma State (Public Works); R.A. Lovelace, M.P.A. Kansas (Intergovernmental Affairs); G. Musick (Police); D.W. Ownbey, J.D. Tennessee (Ordinance Codification); E. Puetz, J.D. Tennessee.
Tennessee’s industries informed about the supply of and demand for trained qualified personnel; and by cooperating with the Governor’s Staff Assistant for Industrial Development and the Tennessee Industrial and Agricultural Commission in carrying out its duties."

This statewide program encourages and assists managers of Tennessee firms to draw upon the intellectual resources of the colleges and universities to upgrade the firm’s performance. Field engineers experienced in manufacturing operations take the initiative in encouraging the upgrading and expansion of management in their plant environment.

The Center for Industrial Services is headquartered in Nashville. Regional offices are maintained in Chattanooga, Cookeville, Jackson, Johnson City and Knoxville.

Center for Government Training

Executive Director:
D.M. Sullivan D.P.A. Nova University.

Associate Director:

Assistant Directors:
E.K. Smith; J.W. Fort, M.A. Austin Peay; G.T. Himes, Jr., B.S. Belmont.

Program Administrator:
M.D. Traughber, B.S. Middle Tennessee State.

Regional Managers:
R.H. Cummings, Jr., B.S. Tennessee; D.J. Edmondson, B.S. Tennessee; A.C. North, Jr., B.S. Middle Tennessee State; D.R. Waynick, B.S. Lambuth.

State Program Consultant:
J.F. Roop, M.S. Indiana.

The Center for Government Training has responsibility for providing professional assistance and establishing training and career development programs for state and local government officials and employees throughout the state. Headquarters is located in Nashville, but regional offices are also maintained in Jackson and Knoxville. The Center is charged with identifying and analyzing needs for public service education and training at the state and local levels in Tennessee, and with developing and conducting programs for training of public agency employees, working with institutions of higher education in the state and other educational facilities. The Center acts as a clearinghouse for information relative to public service personnel education and training programs. In addition, the Center serves as the central administrative agency in a statewide local government training network which includes four campuses of the University and the six senior institutions in the Board of Regents system.

Technical Assistance Center

Director:
J.T. Brothers, B.S. Tennessee.

Associate Director:
J.R. Annis, M.B.A. Inter-American University

The Technical Assistance Center was created in March, 1970. It is funded in part by a grant from the Economic Development Administration of the U.S. Department of Commerce.

The Center gives assistance to small businesses or industry, prospective business or industry, development districts, local governments, or local economic development groups in activities which will promote the economic development of the eastern portion of the state. Priority is given to projects within 35 counties which have been designated by EDA as Redevelopment Areas.

Assistance given includes economic feasibility studies, market studies, management review and assistance, and management seminars and conferences. The technical work of the Center is performed by faculty and students of the University.
# THE UNIVERSITY OF TENNESSEE GENERAL SUMMARY

## Administration

Trustees:
- Appointed by the Governor .......................................................... 18
- Ex-Officio ....................................................................................... 5

Officers of Administration:
- President ....................................................................................... 1
- Vice Presidents ............................................................................. 8<sup>a</sup>
- Assoc./Asst. Vice Presidents ...................................................... 7
- Chancellors ................................................................................... 5<sup>b</sup>
- Vice Chancellors and Provost ..................................................... 19
- Assoc./Asst. Vice Chancellors ................................................. 8
- Deans and Directors .................................................................. 243

## Full-Time and Part-Time Faculty 1976-77

<table>
<thead>
<tr>
<th></th>
<th>Center for the Health Sciences&lt;sup&gt;c&lt;/sup&gt;</th>
<th>Chattanooga</th>
<th>Knox-ville</th>
<th>Martin</th>
<th>Nashville</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professors</td>
<td>174</td>
<td>42</td>
<td>496</td>
<td>23</td>
<td>21</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>188</td>
<td>71</td>
<td>441</td>
<td>101</td>
<td>35</td>
</tr>
<tr>
<td>Assistant Professors</td>
<td>232</td>
<td>112</td>
<td>407</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Instructors</td>
<td>158</td>
<td>111</td>
<td>272</td>
<td>33</td>
<td>25</td>
</tr>
<tr>
<td>Totals</td>
<td>752</td>
<td>336</td>
<td>1,616</td>
<td>257</td>
<td>131</td>
</tr>
</tbody>
</table>

## Instruction, Research, and Public Service

- Officers of the Agricultural Experiment Station .................................................. 38
- Officers of the Engineering Experiment Station ............................................... 2
- Officers of the Agricultural Extension Service .............................................. 412
  (Includes County Agents)
- Lecturers ......................................................................................... 129
- Graduate, Research, and Teaching Assistants, Fellows, Trainees .................. 1,751
- Officers of the Memorial Research Center and Hospital ................................ 63

<sup>a</sup> Includes three vice presidential titles held by one person.
<sup>b</sup> Includes two vice presidents.
<sup>c</sup> Includes UTMRCCH.
<table>
<thead>
<tr>
<th></th>
<th>Fall 1976</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Data and Information (252 men and 50 women) are not included. The enrollment data in this statement summary of the University of Tennessee System report is not available.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE**

<table>
<thead>
<tr>
<th>Year</th>
<th>TN Total</th>
<th>Fall 1976 Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>786,171</td>
<td>2,928,292</td>
</tr>
<tr>
<td>1977</td>
<td>797,188</td>
<td>2,959,503</td>
</tr>
<tr>
<td>1978</td>
<td>807,264</td>
<td>2,990,713</td>
</tr>
<tr>
<td>1979</td>
<td>817,333</td>
<td>3,021,922</td>
</tr>
<tr>
<td>1980</td>
<td>827,403</td>
<td>3,053,131</td>
</tr>
<tr>
<td>1981</td>
<td>837,474</td>
<td>3,084,340</td>
</tr>
<tr>
<td>1982</td>
<td>847,545</td>
<td>3,115,549</td>
</tr>
<tr>
<td>1983</td>
<td>857,616</td>
<td>3,146,758</td>
</tr>
<tr>
<td>1984</td>
<td>867,687</td>
<td>3,177,967</td>
</tr>
<tr>
<td>1985</td>
<td>877,758</td>
<td>3,209,176</td>
</tr>
<tr>
<td>1986</td>
<td>887,829</td>
<td>3,240,385</td>
</tr>
<tr>
<td>1987</td>
<td>897,900</td>
<td>3,271,594</td>
</tr>
<tr>
<td>1988</td>
<td>907,971</td>
<td>3,302,793</td>
</tr>
<tr>
<td>1989</td>
<td>918,042</td>
<td>3,333,992</td>
</tr>
<tr>
<td>1990</td>
<td>928,113</td>
<td>3,365,191</td>
</tr>
<tr>
<td>1991</td>
<td>938,184</td>
<td>3,396,390</td>
</tr>
<tr>
<td>1992</td>
<td>948,255</td>
<td>3,427,590</td>
</tr>
<tr>
<td>1993</td>
<td>958,326</td>
<td>3,458,790</td>
</tr>
<tr>
<td>1994</td>
<td>968,407</td>
<td>3,489,990</td>
</tr>
<tr>
<td>1995</td>
<td>978,488</td>
<td>3,521,190</td>
</tr>
<tr>
<td>1996</td>
<td>988,569</td>
<td>3,552,390</td>
</tr>
</tbody>
</table>

**Grand Total**

<table>
<thead>
<tr>
<th>Year</th>
<th>TN Total</th>
<th>Fall 1976 Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1976</td>
<td>786,171</td>
<td>2,928,292</td>
</tr>
<tr>
<td>1977</td>
<td>797,188</td>
<td>2,959,503</td>
</tr>
<tr>
<td>1978</td>
<td>807,264</td>
<td>2,990,713</td>
</tr>
<tr>
<td>1979</td>
<td>817,333</td>
<td>3,021,922</td>
</tr>
<tr>
<td>1980</td>
<td>827,403</td>
<td>3,053,131</td>
</tr>
<tr>
<td>1981</td>
<td>837,474</td>
<td>3,084,340</td>
</tr>
<tr>
<td>1982</td>
<td>847,545</td>
<td>3,115,549</td>
</tr>
<tr>
<td>1983</td>
<td>857,616</td>
<td>3,146,758</td>
</tr>
<tr>
<td>1984</td>
<td>867,687</td>
<td>3,177,967</td>
</tr>
<tr>
<td>1985</td>
<td>877,758</td>
<td>3,209,176</td>
</tr>
<tr>
<td>1986</td>
<td>887,829</td>
<td>3,240,385</td>
</tr>
<tr>
<td>1987</td>
<td>897,900</td>
<td>3,271,594</td>
</tr>
<tr>
<td>1988</td>
<td>907,971</td>
<td>3,302,793</td>
</tr>
<tr>
<td>1989</td>
<td>918,042</td>
<td>3,333,992</td>
</tr>
<tr>
<td>1990</td>
<td>928,113</td>
<td>3,365,191</td>
</tr>
<tr>
<td>1991</td>
<td>938,184</td>
<td>3,396,390</td>
</tr>
<tr>
<td>1992</td>
<td>948,255</td>
<td>3,427,590</td>
</tr>
<tr>
<td>1993</td>
<td>958,326</td>
<td>3,458,790</td>
</tr>
<tr>
<td>1994</td>
<td>968,407</td>
<td>3,489,990</td>
</tr>
<tr>
<td>1995</td>
<td>978,488</td>
<td>3,521,190</td>
</tr>
<tr>
<td>1996</td>
<td>988,569</td>
<td>3,552,390</td>
</tr>
</tbody>
</table>

**Statewide Enrollment Summary**

- Fall 1976
- Data and Information (252 men and 50 women) are not included.
- The enrollment data in this statement summary of the University of Tennessee System report is not available.
Index

Academic Calendar, 4, 5
Academic Continuation, 20
Academic Regulations, 18
Accelerated Program, 22
Accounting, 73, 78, 81
Accreditation 49, 72, 87, 93, 226
Administration:
Knoxville, 6
Statewide, 8
Summary, 238
Admission, 13-18
Application Directory, 13
Center for the Health Sciences, 14, 170
Colleges and Schools:
Agriculture, 16
Architecture, 16
Business Administration, 16
Communications, 16, 87
Education, 16, 94
Engineering, 16
Home Economics, 16
Law, 163
Liberal Arts, 16
Nursing, 16, 227
Veterinary Medicine, 63
Evening School, 13
General Requirements, 13
Graduate School, 14, 39
High School Unit Requirements, 14, 16
International Students, 14
Readmission, 21
Specific Categories, 15
Specific Programs, 16
Special Student, 15
Transfer, 15
Unclassified Students, 14
Advanced Standing, 18
Advertising, 88, 89
Aerospace Engineering, 120, 123, 143
Advising, 18
Agriculture:
Animal Science, 52, 59
Biology, 50, 57
College of, 49
Cooperative Program, 56
Economics and Rural Sociology, 50, 57
Education, 51, 101, 112
Engineering, 51, 58, 120, 124, 133
Experiment Station, 48
Extension Station, 52, 58
Extension Service, 49
Food Technology and Science, 54, 60
Forestry, 54, 60
Institute of, 48
Interdepartmental Courses, 56
Mechanization, 52, 58
Ornamental Horticulture and Landscape Design, 55, 61
Plant and Soil Sciences, 56, 62
Pre-Veterinary Medicine, 53, 63
Short Courses, 56
Veterinary Medicine, College of, 63
Wildlife and Fisheries Science, 55, 61
Air Force Aerospace Studies, 229
Advanced, 22
American Studies, 189
Animal Science, 52, 59
Anthropology, 178
Application Directory, 13

Arabic, 218
Architecture, 66
Army, 22, 230
Arrowmont School of Crafts, 155
Art: 180
Education, 97, 101
Exhibitions, 36
Asian Studies, 189
Assistantships, 40
Astronomy, 211
Athletics, 37
Audiology and Speech Pathology, 181
Auditors, 18, 20, 24
Automobile Regulations, 36
Average, Required, 20
Aviation Systems, 46
Awards, 29
Bachelor of Arts, 167, 168
Bachelor of Fine Arts, 167, 172
Bachelor of Music, 168, 173
Bachelor of Science in Chemistry, 168, 175
Bachelor's Degree, Requirements, 21, 168
Bands, University, 36
Banking, 74
Binary Engineering Program, 117
Biochemistry, 182
Biology, 183
Biology, Agriculture, 50, 57
Biomedical Engineering, 120, 140
Biomedical Sciences, 40, 42
Black Studies: 189
Office of, 177
Board of Trustees, 7
Bookstore, 33
Botany, 183
Broadcasting, 37, 88, 90
Business Administration, College of, 72
Business Administration, 86
Business and Economic Research, Center for, 72, 86
Business Law, 81
Business:
Cooperative Program, 73
Education, 74, 101, 113
General, 75, 79
Calendar, 4, 5
Campus map, 10
Carousel Theatre, 36
Center, University, 33
Center for Extended Learning, 232
Center for the Health Sciences, 14, 170
Chemical Engineering, 120, 124, 133, 134
Chemistry, 184
Cooperative Program, 175
Child and Family Studies, 149, 154
Chinese (Asian Studies), 189
Choral Groups, 36
Church Centers, 35
Civil Engineering, 120, 125, 135
Classics, 186
Classification of Students, 20
Clothing, Textiles and, 154, 160
College Scholars Program, 170
Communications, 89
Communications, College of, 87
Community Nutrition, 152
Comparative Literature, 190
Computer Science, 187
Computing Center, 235

Conferences and Institutes, 92
Continuing and Higher Education, 102
Continuing Education, Division of:
Knoxville, 92
Statewide, 232
Cooperative Programs:
Agriculture, 56
Business Administration, 73
Chemistry, 175
Communications, 87
Engineering, 117, 123
Coordinated Undergraduate Program in Dietetics (ADA), 152
Correspondence Study, 21, 232
Counseling, Student, 16, 35
County Technical Assistance Service, 236
Course Changes in Registration, 19
Course Numbers and Levels, 20
Crafts, 150, 155
Crafts, Interior Design and Housing, 150, 155
Credit Hours, 16
Cultural Opportunities, 36
Cultural Studies, 188
Curriculum and Instruction, 102
Cybernetics and Bionics, 46
Dean's List, 29
Degrees, 17, 22, 40
Deferred Payment Service Fee, 24
Dental Hygiene, 171
Dentistry, 170
Deposits, Military, 23
Distributive Education, 101, 113
Doctor of Education Degree, 40
Doctor of Jurisprudence Degree, 163
Doctor of Philosophy Degree, 40
Dormitories, 25
Dropping Courses, 20
Ecology, 192
Economics, 74, 81, 193
Agricultural, 50, 57
Education:
Administration and Supervision, 105
Agricultural, 51, 101, 112
Art, 97, 101
Business, 74, 101, 113
Continuing and Higher, 102
Curriculum and Instruction, 102
Distributive, 101, 113
Elementary, 95
Health and Safety, 97, 107
Home Economics, 101, 113, 148, 153, 160
Industrial, 101, 114
Music, 97, 101
Physical, 97, 108
Psychology and Guidance, 106
Recreation, 97, 107, 110
Secondary, 96, 176
Special, 99, 111
Vocational-Technical, 101, 112
Educational Administration and Supervision, 105
Educational Psychology and Guidance, 106
Educational Research and Service, Bureau of, 93
Electrical Engineering, 120, 126, 137
Elementary Teaching, 95
Employment, Student, 26
Parking Regulations, 36
Passing Grades, 18, 90
Payments, Deferred, 24
Personnel Management, 77, 80, 83
Pharmacy, 172
Phi Beta Kappa, 32
Phi Kappa, 32
Philosophy, 210
Physical Education, 97, 108
Physical Examinations, 18
Physical Sciences, 211
Physical Therapy, 172
Physics, 211
Physics, Engineering, 121, 127, 141, 212
Placement Service, 33
Planning, Graduate School of, 44
Plant and Soil Science, 56, 62
Political Science, 213
Polymer Engineering, 135
Portuguese, 220
Pre-Dental Program, 170
Pre-Dental Hygiene, 171
Pre-Medical Program, 171
Pre-Medical Record Administration, 171
Pre-Medical Technology, 171
Pre-Nursing, 172
Pre-Pharmacy, 172
Pre-Physical Therapy, 172
Pre-Veterinary Medicine, 53, 63
Press, University of Tennessee, 38
Proficiency Examinations, 18, 22
Psychological Clinic, 177
Psychology, 215
Psychology and Guidance, 106
Public Administration: 77, 176
Bureau of, 177
Public Health, 107
Public Service, Institute of, 236
Publications:
  Student, 37
  University, 38
Quarter Hour, 18, 20
Radiation Biology, 40
Radio Services, 233
Readmission, 21
Real Estate and Urban Development, 77, 83
Recreation, 97, 107
Recreation, Office of, 33
Refund of Fees, 24
Registration Dates, 4, 5
Rehabilitation, 111
Religious Influences, 35
Religious Studies, 217
Requirements:
  Academic, 18
  Admission, 14
  Bachelor's Degree, 21
  Correspondence Work, 21
  Doctor of Education Degree, 40
  Doctor of Jurisprudence Degree, 163
  Doctor of Philosophy Degree, 40
  Grades, 18
  Health, 18
  High School Units, 14, 16
  Master's Degree, 40
  Parking, 36
  Residency Classification, 14
  Residence Requirements, 14
Research Organizations, 12
Residence Halls, 25
Residence Requirements, 14
Residency Classification, 14
Romance Languages, 218
R.O.T.C.:
  Advanced, 231
  Air Force, 239
  Army, 230
  Rural Sociology, 57
Russian and East European Studies, 191
Russian, 199
Safety, 108
Scholarship, 25
School Health, 108
Science, Engineering, 121, 128, 140
Science-Medical Technology, 171
Secondary Teaching, 96, 176
Secretarial Program, Two Year, 76
Senate Bill 1445, 18
Short Courses, Agriculture, 56
Singers, UT, 36
Social Fraternities and Sororities, 35
Social Work, 45
Sociology: 221
  Rural, 57
Sororities, 35
Space Institute, 39, 46
Spanish, 220
Special Education, 99, 111
Special Students, 15
Speech and Theatre, 222
Speech Pathology, Audiology and, 181
Sports, 33
State and Federal Laws, 18
Statistics, 78, 80, 86
Stokely Athletics Center, 37
Student Affairs and Services: 33
  Admissions and Records, 33
  Activities Office, 33, 34
  Career Planning and Placement Service, 33
  Counseling Center, 35
  Employment, 26
  Financial Aid, 25
  Health Service, 35
  Insurance, 23
  International Student Affairs, 33
  Loans, 26
  Organizations, 35
  Publications, 37
Traditions, 37
Study Abroad, 177
Summer Quarter, Fees and Expenses, 24
Supply Store, 33
Teachers:
  General Information, 20, 94, 176
  Elementary, 95
  Secondary, 96, 176
  Teaching Materials Center, 233
  Technical Assistance Center, 237
  Technical Education, 112
  Television Services, 233
  Tennessee Executive Development Program, 72
Textiles and Clothing, 154, 160
Theatre, Speech and, 223, 224
Theatres, University, 36, 178
Theology, 176
Title I, 233
Title IX, 2, 18
Traditions, 37
Transfer Students, 14, 15, 21
Transportation, 78, 80, 85
Transportation Center, 42
Transportation, Marketing and, 84
Trustees, 7
Tuition, 23
Unclassified Students, 14
Undergraduate Degrees, 17, 22
University Center, 33
University Computing Center, 235
University Studies, 224
Urban and Public Affairs, 236
Vehicle Operation and Parking, 36
Veterinary Medicine, 63
Vocational Certification, Home
  Economics, 153
Vocational-Technical Education, 101, 112
Water Resources Development, 46
Wildlife and Fisheries Science, 55, 61
Withdrawals, 19
Women's Studies, 192
WUOT, 37
Zoology, 224